



# The Sizewell C Project

## 9.40 Fen Meadow Compensation Study 2018 Phase 1 Report

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Revision: 1.0  
Applicable Regulation: Regulation 5(2)(q)  
PINS Reference Number: EN010012

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July 2021

Planning Act 2008  
Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

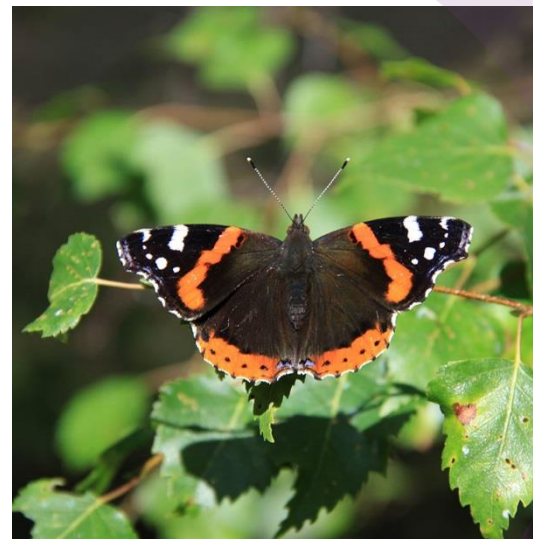


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EDF Energy

**Sizewell C**

Fen Meadow Compensation  
Study - Approach and site  
Screen Report 2018



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Doc Ref. 40773rr002i2

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**Document revisions**

No.	Details	Date
1	Draft for Client Review	June 2018
2	Final	June 2018



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# 1. Introduction

## 1.1 Background

### Policy Context

The National Policy Statement for Nuclear Power Generation (EN-6) identified Sizewell as one of eight sites potentially suitable for new nuclear build. The accompanying Appraisal of Sustainability (AoS) identified that there could be potential significant effects at a number of SSSIs. Based on the nominated site boundary, the AoS identified that there is likely to be direct loss and fragmentation of habitats within Sizewell Marshes SSSI. The AoS refers to the need for the developer to avoid or minimise such losses, but notes that there is potential for habitat creation within the wider area in order to replace lost 'wet meadows' habitat from this SSSI. The AoS also notes that it may not be possible to fully compensate for land-take. EDF Energy's strategy for SSSI replacement at the Aldhurst Farm Habitat Creation Scheme, and potentially elsewhere, is therefore aligned with EN-6.

### Sizewell Marshes SSSI

Sizewell Marshes SSSI is 105.4ha in size and is located immediately to the west of the existing Sizewell Power Station platform. The citation indicates that the site is important for having large areas of lowland, unimproved wet meadows which support outstanding assemblages of invertebrates and breeding birds. This habitat supports many nationally rare or scarce species of terrestrial and aquatic beetles (Coleoptera), flies (Diptera), moths (Lepidoptera), dragonflies (Odonata) and spiders (Araneae). Furthermore, it supports breeding birds of national significance, including shoveler (*Anas clypeata*), gadwall (*Anas strepera*), teal (*Anas crecca*), snipe (*Gallinago gallinago*) and lapwing (*Vanellus vanellus*) which are all typical of wet grassland and associated habitats. The extensive ditch system on site also supports a diverse aquatic flora, including the nationally scarce soft hornwort (*Ceratophyllum submersum*), fen pondweed (*Potamogeton coloratus*) and whorled water-milfoil (*Myriophyllum verticillatum*).

The full list of notified interest features for the SSSI<sup>1</sup> is presented in Table 1.1 below.

Table 1.1 Sizewell Marshes SSSI notified interest features

Notified Interest Features
M22 - <i>Juncus subnodulosus</i> - <i>Cirsium palustre</i> fen meadow
M23 - <i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush pasture
S26 - <i>Phragmites australis</i> - <i>Urtica dioica</i> tall-herb fen
<b>Vascular Plant Assemblage</b>
Lowland ditch systems
<b>Assemblages of breeding birds - Lowland damp grasslands</b>
<b>Invertebrate Assemblage</b>

<sup>1</sup> As indicated on:

<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1003416&SiteName=sizewell&countyCode=&responsiblePerson=>

## Area of Sizewell Marshes SSSI Likely to be Affected

The development platform for Sizewell C will extend a short distance into the eastern margins of the SSSI. The toe of the batter of the proposed platform will define the extent of permanent land-take but, additional to that, ditch re-alignment is required which will take a limited amount of further land.

Based on National Vegetation Classification (NVC) survey data the main affected habitats are M22 *Juncus subnodulosus* – *Cirsium palustre* fen meadow, S26 *Phragmites australis* - *Urtica dioica* tall-herb fen, S4 *Phragmites australis* reedbed and some W5 *Alnus glutinosa* – *Carex paniculata* wet woodland.

Losses of all the habitats listed with the exception of fen meadow are being addressed through the Aldhurst Farm Habitat Creation Scheme. Feedback from Natural England in 2014/2015 during consultations on the design of the Aldhurst Farm site was that:

- Aldhurst Farm should provide satisfactory compensation, both in terms of quality and quantity, for loss of reedbed and lowland ditch habitats;
- Creation of reedbed is likely to provide satisfactory compensation for impact on invertebrate assemblage, subject to further investigation of the invertebrate fauna associated with the affected wet woodland;
- Rare vascular plant assemblage is mainly associated with lowland ditch habitat and fen meadow; reedbed is of limited interest in this respect; and
- Aldhurst Farm is unlikely to be suitable for the creation of fen meadow / rush pasture as there would be very limited compatible/contiguous habitat.

The focus of this study is therefore on the provision of compensatory fen meadow habitat, particularly M22 *Juncus subnodulosus* – *Cirsium palustre* fen meadow.

The extent of fen meadow loss to platform development and ditch realignment is still under consideration but is likely to be no more than 0.5ha.

## 1.2 The Ecohydrological Requirements of M22 *Juncus subnodulosus* – *Cirsium palustre* Fen Meadow

To identify sites that have the potential to support M22 *Juncus subnodulosus* – *Cirsium palustre* fen meadow it is necessary to recognise the main components and ecohydrological requirements of the community.

### Community Characteristics

The M22 fen meadow community shows considerable variation in its floristic composition but it can be species rich. Wheeler et al (2010)<sup>2</sup>, indicates that a total of 403 species has been recorded in M22 samples. M22 is typically dominated by sedges and rushes of medium height. *Juncus subnodulosus* is the most characteristic rush, though not always present such that *J. articulatus* and *J. inflexus* occasionally dominate. *Carex acutiformis* and *C. disticha* are particularly characteristic sedges and can be strongly dominant. However the community can support a number of rare mire species, including *Blysmus compressus*, *Calamagrostis canescens*, *Calliargon giganteum*, *Campyllum elodes*, *Carex acuta*, *Carex appropinquata*, *Carex diandra*, *Carex elata*, *Carex lasiocarpa*, *Carex viridula ssp viridula*, *Cladium mariscus*, *Dactylorhiza praetermissa*, *Dactylorhiza traunsteineri*, *Eleocharis uniglumis*, *Epipactis palustris*, *Erica ciliaris*, *Eriophorum latifolium*, *Hypericum undulatum*, *Juncus alpinoarticulatus*, *Lathyrus palustris*, *Oenanthe lachenalii*, *Osmunda*

<sup>2</sup> Wheeler, B.D., Shaw, S.C. Brooks, A.W and Whiteman, M.I. (2010). Ecohydrological Guidelines for Lowland Wetland Plant Communities. Fens and mires update, March 2010. Environment Agency.

*regalis*, *Peucedanum palustre*, *Philonotis calcarea*, *Plagiomnium elatum*, *Potamogeton coloratus*, *Ranunculus lingua*, *Sphagnum teres*, *Stellaria palustris*, *Thalictrum flavum* and *Thelypteris palustris*.

M22 is not easy to define because of its floristic variety and lack of good positive characterisation. Particularly distinctive features are essentially (wet) meadow plants such as *Juncus subnodulosus*, *Cirsium palustre*, *Filipendula ulmaria*, *Lotus uliginosus*, *Calliargon cuspidatum*; however these species not only occur in wet meadows, but also in M13 and other communities.

The floristic characteristics of the community present on Sizewell Marshes has been reported in detail by Arcadis (2016)<sup>3</sup> and is therefore not repeated in detail here.

## Landscape Situation

M22 is particularly a feature of lowland valleyhead fens, though this has less to do with hydrology than the fact that many are (or were recently) grazed. M22 can also be found in grazed, floodplain sites and some partly drained grazing levels, as is the case on Sizewell Marshes. The majority of sites occupy flat situations or hollows (Wheeler et al, 2010).

## Zonation

Many M22 stands do not show clear zonations with other mire communities. In some cases they occur as small fragments whilst elsewhere they occupy entire (valleyhead) sites bounded by transitions into drier ground or watercourses. In some floodplain locations, M22 can occupy large areas and entire compartments bounded by dykes. Such expanses are not necessarily uniform, but floristic variation within them is expressed in terms of different versions of M22 rather than different communities (often imposed by selective grazing). This describes the situation on Sizewell Marshes.

Management (cutting or grazing) is critical to the maintenance of M22. Wheeler *et al.* (2010) indicates that examples on floodplains may be a product of scrub clearance or of grazing of tall herb fen (S24, S25), again often – but not always – enhanced by drainage. A corollary is that M22 can disappear as a result of dereliction, though the process can be slow and is not always complete: in a number of locations in Broadland, patches of strong *Juncus subnodulosus* dominance within S24 are probably the relicts of former M22 litter fens, where mowing seems to have been abandoned well over fifty years ago.

## Ecohydrological Requirements

### Substrate

Wheeler *et al.* (2010) indicates that M22 typically occurs on shallow peaty soil, sometimes organic gleys but also on deep (>1.5m) peats in floodplains or basins. Of the reference sites in the Ecohydrological guidelines (Wheeler *et al.*, 2010), c.75% were recorded in valleyheads with typically shallow peat (<0.5m), 20% of samples were recorded from floodplains (mean peat depth = 1.47 m), whilst 8% occupied peat deposits deeper than 1.5 m, all in basins or floodplains.

Substratum is typically of circumneutral pH, although there are examples of low pH on upland margins or partly drained sites. Lower pH has also been found on sites with less base-rich bedrocks. There is considerable variation in fertility, but the majority are mesotrophic.

### Water Supply Mechanisms

Irrigating water is typically of circum-neutral pH.

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<sup>3</sup> Arcadis (2016). Eco-hydrological Conditions in Sizewell Marshes SSSI: An overarching review of factors influencing vegetation composition and distribution. Version 2 – July 2016.



M22 meadows can be irrigated by both surface water and groundwater, depending on their situation. It is estimated, in Wheeler *et al.* (2010), that groundwater provides the main component of the water supply to the rooting zone in approximately 70% of sites, and surface water in approximately 10%. The remaining 20% of sites are irrigated by a mixture of groundwater and surface water (around five per cent), or have low summer water tables (where the surface is mostly exclusively rain-fed).

Wheeler *et al.* (2010) indicates that water conditions are variable, consequently, mean water table values have limited value. However an indication of optimal and sub-optimal water level regimes is provided.

#### Optimal Water Level Regime

- M22 is usually characterised by summer water tables that are below the surface (-5 to -18 cm);
- M22 stands with the highest summer water tables are usually groundwater fed; and
- The most species rich stands are found at water levels between -5 and -20 cm.

#### Sub-optimal Water Level Regime

- Very wet sites (summer water table usually above surface between tussocks) tend to be less species rich. Prolonged deep inundation, particularly in summer, is likely to be damaging; and
- Moderate reductions in water levels may increase species richness, but a long term reduction of the summer water table beneath high quality stands of M22 can be expected to result in the loss of some botanical interest.

#### Hydrochemistry / Nutrients

Wheeler *et al.* (2010) indicates that M22 is typically found in base-rich conditions over a wide range, but usually moderate level of fertility, usually occupying more fertile situations than M24 or M13. Some of the least fertile sites were the most species rich, although studies have not demonstrated a significant relationship between substratum fertility and species richness, indicating that other variables may also be important. Low fertility may help to retard invasion by tall-herb fen and scrub into unmanaged stands.

## 1.3 Scope of the Study

This study aim is to identify potential sites for provision of fen meadow habitat that is sustainable in the long term to compensate for any unavoidable loss of fen meadow habitat. Key characteristics for the potential sites were considered to be:

- **Site size:** The site has to be of sufficient size to provide adequate compensation for any unavoidable land-take taking account of requirements for conservation management and the need to be sustainable (e.g. resilient to potential effects of climate change such as sea level rise) in the long-term. It is currently envisaged that 2-3 ha would be a minimum requirement but a decision on adequacy would need to be made once full details of the proposed development are known and its potential adverse effects have been fully assessed;
- **Site status:** Undesignated, not currently under conservation management and existing habitats should offer significant potential for enhancement;
- **Environmental setting:** appropriate hydrology; hydrogeology; hydrochemistry & substrate;
- **Connectivity:** Needs to be close to existing areas of fen meadow / rush pasture or grazing marsh habitat under appropriate conservation management;
- **Accessibility:** Must be readily accessible for conservation management; and

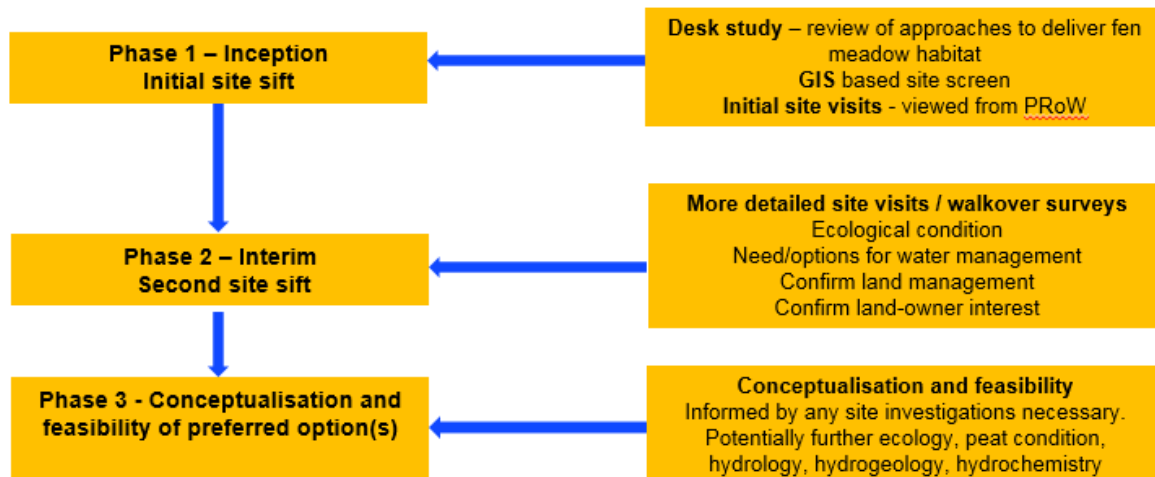
- **Landowner interest:** Need to identify a real site shortlist, not a virtual one.

Ideally, the chosen site will not require significant engineering / construction activities.

## 1.4 Project Outline and Work to Date

The project comprises 3 phases and associated tasks as detailed in Figure 1.1.

Figure 1.1 Project Outline



A review of approaches to provision of compensatory fen meadow habitat, and an initial site sift phase, and stakeholder consultation, was undertaken in 2015/2016 and reported in Fen Meadow Compensation Study – Approach and Initial Site Screen Report (Amec Foster Wheeler, 2016<sup>4</sup>).

As the objective of the project was to provide compensatory fen meadow as close to the area of habitat to be lost as possible a relatively restricted search area was identified, essentially encompassing the valleys of the rivers Blythe, Minsmere and Alde.

The summary conclusions were:

- Of the 4 main potential approaches to providing compensatory fen meadow habitat, restoration is the approach most likely to deliver sustainable fen meadow habitat in the long term for this scheme and is the preferred approach.
- The GIS analysis, review of web-based data, and consultations with stakeholders, identified a total of 32 sites that were then visited where access was possible from PRow. Three of these were given a green ranking and were to be carried forward into the next phase, whilst 8 sites were given an amber ranking and were put on hold subject to further assessment of green sites. The remaining 21 sites were considered least likely to be suitable and very unlikely to be investigated further in future project phases.

The 3 Green ranked sites were subsequently visited by EDF Energy. None were considered ideal for restoration to fen meadow and whilst it was recommended that land parcels 10 / 11 at Snape Watering (ref: Amec Foster Wheeler, 2016) remain within the process as the sites with the greatest potential, EDF Energy ideally needs more than a single site to choose from. Subsequently, to confirm that the method used has not omitted potentially suitable sites a review of the approach was undertaken and a way forward proposed.

<sup>4</sup> Amec Foster Wheeler (2016). Sizewell C. Fen Meadow Compensation Study – Approach and Initial Site Screen Report. EDF Energy.

The review concluded that:

- 1) The GIS screening, and subsequent review with web-based data should be revisited with a revised set of criteria (i.e. omitting the Priority Habitat screening criterion) for the initial study area. It was considered that whilst this may identify some large land parcels in the river valleys, it may also be possible to quite quickly screen these out based on the characteristics of adjacent land parcels that were previously identified. However the potential provided by 'pockets' of suitable land that may also be present in tributary valleys should not be discounted.
- 2) At the same time as the GIS screening above was undertaken, the screening should be extended across Suffolk. It would then be possible to identify and review potential in additional target areas, such as the south Broads along the Waveney, for example.
- 3) Retain land parcels 10 / 11 at Snape Watering (ref: Amec Foster Wheeler, 2016) within the process as the sites with the greatest restoration potential from the initial screen, and consider these alongside any new sites identified by the process proposed in 1 and 2 above.

## 1.5 This Report

This report updates the 2016 issue, detailing the work undertaken following the recommendations made above, although it does not repeat the desk study section included previously as this is unchanged. The report is structured as follows:

- Section 2 presents the approach to, and results of, the updated site screening exercise extended to the whole of Suffolk. The results obtained in 2018 build on those reported previously and therefore the report presents the combined 2016 and 2018 approach and site screen results for ease of reference; and
- Section 3 presents conclusions and next steps.

## 2. Site Screening

### 2.1 Context

Building on the conclusions of the desk study that the preferred approach to the delivery of sustainable compensatory fen meadow habitat should be restoration of a former fen meadow site, the key characteristics in site selection are deemed, as indicated in Section 1, to be:

- **Site size:** The site has to be of sufficient size to provide adequate compensation for any unavoidable land-take taking account of requirements for conservation management and the need to be sustainable (e.g. resilient to potential effects of climate change such as sea level rise) in the long-term. It is currently envisaged that 2-3 ha would be a minimum requirement but a decision on adequacy would need to be made once full details of the proposed development are known and its potential adverse effects have been fully assessed;
- **Site status:** Undesignated, not currently under conservation management and existing habitats should offer significant potential for enhancement;
- **Environmental setting:** appropriate hydrology; hydrogeology; hydrochemistry & substrate;
- **Connectivity:** Needs to be close to existing areas of fen meadow / rush pasture or grazing marsh habitat under appropriate conservation management;
- **Accessibility:** Must be readily accessible for conservation management; and
- **Landowner interest:** Need to identify a real site shortlist, not a virtual one.

Table 2.1 summarises the project stages at which these characteristics would be considered.

Table 2.1 Site characteristics

Key site characteristics	Phase 1	Phase 2	Phase 3
<b>1. Site size: Site needs to be of sufficient size to provide adequate compensation for any unavoidable land-take, 2-3 ha would be a minimum requirement</b>	✓		
<b>2a. Site status: Undesignated; not in conservation management</b>	✓		
<b>2b. Existing habitats: Significant potential for enhancement</b>	✓	✓	✓
<b>3a. Environmental setting – Substrate</b>	✓	✓	✓
<b>3b. Environmental setting: Surface hydrology</b>	✓	✓	✓
<b>3c. Environmental setting: Hydrogeology</b>	✓	✓	✓
<b>3d. Environmental setting: Hydrochemistry</b>	✓	✓	✓
<b>3e. Environmental setting: Topography</b>	✓	✓	✓
<b>4. Connectivity to existing areas of fen meadow or grazing marsh habitat under active conservation management</b>	✓	✓	
<b>5. Accessibility: Must be accessible for management</b>	✓	✓	
<b>6. Landowner interest</b>		✓	✓

## 2.2 Study Area

The study area covered the whole of Suffolk in 2018 including the areas previously screened in 2016.

## 2.3 Site Screening Approach

The site screening approach undertaken in Phase 1 study has comprised 4 steps as detailed below:

1. GIS-based screening;
2. Review of web-based data for land parcels identified by the GIS against non-GIS based criteria;
3. Site visits from public rights of way; and
4. Ranking of land parcels identified using a Red/Amber/Green, with any ranked green proposed to be taken forward to project Phase 2.

### Step 1: GIS Based Screening

A GIS-based screening exercise has been undertaken initially to screen out land areas that are very unlikely to provide suitable conditions to support sustainable fen meadow habitat and hence make more manageable the screening of land parcels that would be subject to visual assessment and potentially site visit.

To undertake GIS analysis, appropriate datasets need to be identified that allow screening of the target areas against the key site characteristics. Initially it was considered possible to use GIS analysis to determine presence or absence of the following key site characteristics on a land parcel:

- Whether a land parcel is designated;
- Whether a land parcel is covered by a Higher Level Stewardship agreement;
- Whether habitats of conservation interest are present on a land parcel, considered to indicate that a land parcel may have potential for enhancement and potentially already supports appropriate species;
- Whether a land parcel is located on appropriate substrate;
- Whether the surface hydrology and topography are likely to be appropriate; and
- The size of potential land parcels.

Table 2.2 below indicates which GIS datasets have been used and how the results have been interpreted in the screening process to define whether land parcels potentially provide the key characteristics necessary to support sustainable fen meadow habitat. All the GIS datasets used in 2018 were re-acquired from the relevant sources and so there is potential for slight changes to be apparent in the screening based on use of these updated datasets.

Table 2.2 GIS datasets and interpretation applied to identify sites with potential to support fen meadow

Key site characteristics	GIS dataset and interpretation applied
<b>1. Site size: 2-3 ha minimum requirement</b>	<b>Dataset:</b> Land parcel area calculation in GIS. <b>Interpretation applied:</b> Land parcels less than 2ha screened out.
<b>2a. Site status: Undesignated; not in conservation management</b>	<b>Datasets:</b> Natural England digital boundary data for designated wildlife sites. Suffolk County Council digital boundary data for County Wildlife Sites.

Key site characteristics	GIS dataset and interpretation applied
	<p>Natural England digital boundary data for Higher Level Stewardship Areas. (Note areas in Entry Level Stewardship not screened out as applies to farm, not specific land parcels).</p> <p><b>Interpretation applied:</b> Land parcels within designated sites or covered by HLS agreement screened out.</p>
<b>2b. Existing habitats – significant potential for enhancement</b>	<p><b>Datasets:</b> Natural England digital boundary data for Priority<sup>5</sup> habitats. These datasets are recognised as potentially inaccurate but are the best available data for this screening stage.</p> <p><b>Interpretation applied:</b> Land parcels supporting the following Priority habitats (Lowland fen, Coastal and Floodplain Grazing Marsh, Purple moor-grass and Rush Pasture, and Good quality semi-improved grassland) screened in because this was considered to indicate that a land parcel may have potential for enhancement and potentially already supports appropriate species. However it is not possible to determine, using GIS, whether existing habitats have potential for enhancement. This would be determined in Step 3.</p> <p>As recommended in Section 1.4, the GIS screening has also been revisited omitting the Priority Habitat screening criterion, to identify potential 'pockets' of suitable land that may also be present in tributary valleys.</p>
<b>3a. Environmental setting – Substrate</b>	<p><b>Dataset:</b> Natmap soilscales.</p> <p><b>Interpretation applied:</b> Land parcels underlain by fen peat screened in, defined from <a href="http://www.landis.org.uk/soilscales/">http://www.landis.org.uk/soilscales/</a>.</p>
<b>3b. Environmental setting – Surface Hydrology</b>	<p><b>Dataset:</b> Environment Agency Flood Map for Planning (Rivers and Sea) - Flood Zone 2.</p> <p><b>Interpretation applied:</b> Land parcels present in flood zone 2 screened in. Taken to represent sites subject to periodic flooding.</p>
<b>3c. Environmental setting – Hydrogeology</b>	<p><b>Dataset:</b> Natmap soilscales.</p> <p><b>Interpretation applied:</b> Land parcels underlain by fen peat screened in, defined from <a href="http://www.landis.org.uk/soilscales/">http://www.landis.org.uk/soilscales/</a>.</p>
<b>3d. Environmental setting – Hydrochemistry</b>	<p>In Phase 1 consideration of hydrochemistry restricted to potential flooding with saline water. Will be considered in more detail in Phases 2 and 3</p> <p><b>Dataset:</b> Environment Agency Flood Map for Planning (Rivers and Sea) - Flood Zone 2.</p> <p><b>Interpretation applied:</b> Land parcels present in flood zone 2 screened in (as above). Although where feedback suggests flooding likely to be saline, these have subsequently been screened out.</p>
<b>3e. Environmental setting – Topography</b>	<p><b>Dataset:</b> Environment Agency Flood Map for Planning (Rivers and Sea) - Flood Zone 2.</p> <p><b>Interpretation applied:</b> Land parcels present in flood zone 2 screened in. Taken to represent predominantly flat sites as typical of many fen meadow sites.</p>
<b>4. Connectivity</b>	Step 2
<b>5. Accessibility: Must be accessible for management</b>	Step 2
<b>6. Landowner interest</b>	Not applicable in Phase 1

<sup>5</sup> Priority habitats are those listed on Section 41 of the NERC Act 2006

## Step 2: Review of Web-based Data for Land Parcels Identified by the GIS Screening Against non-GIS Based Criteria

Areas of land in the target search areas that met the criteria identified in Table 2.2 were each then assessed visually using web-based data-sources against the criteria detailed in Table 2.3 below.

Table 2.3 Datasets and interpretation applied to further screen sites with potential to support fen meadow

Key site characteristics	Dataset and interpretation applied
<b>3b. Environmental setting – Surface Hydrology</b>	<p>Datasets: OS Mapping on Bing Maps. Aerial photography on Bing Maps.</p> <p>Interpretation applied: Presence of ditches. Taken to indicate the need to remove water/ presence of facility to retain water on site if needed.</p>
<b>4. Connectivity</b>	<p>Datasets: Natural England digital boundary data for designated wildlife sites. Suffolk County Council digital boundary data for County Wildlife Sites. Natural England digital boundary data for Priority habitats.</p> <p>Interpretation applied: Close to existing areas of fen meadow, coastal and floodplain grazing marsh or purple moor-grass and rush pasture habitat under active conservation management. Taken to indicate potential to extend area of valuable habitat as opposed to creating an isolated land parcel in an otherwise arable landscape for example.</p>
<b>5. Accessibility: Must be accessible for management</b>	<p>Datasets: OS Mapping on Bing Maps. Aerial photography on Bing Maps. Land registry data on ownership boundaries.</p> <p>Interpretation applied: Presence of tracks leading to land parcels allowing access without the need to cross fields screened in. Parcels potentially with multiple land owners considered less favourable due to the potential need for EDF Energy to reach agreement with multiple parties.</p>

## Step 3 Site Visits

During Steps 1 and 2 it is not possible to assess:

- Whether the site has potential for enhancement (i.e. it may already be in good condition);
- Potential for water level management; and
- Condition of peat (i.e. the peat present may have been degraded by historic drainage. In this situation simple re-wetting would not deliver environmental conditions required to support sustainable good quality fen meadow habitat and would indicate that engineering works would be required for such a site to be taken forward).

Therefore, all land parcels remaining in the process after Steps 1 and 2 were visited, where accessible, from public rights of way to ground truth the GIS and web-based data review stages. The exception was site 31 which is in South Norfolk and was considered too distant from the likely site of loss to warrant a visit at this project stage.

Visits to the sites screened in 2016 (i.e. those located in the valleys of the rivers Blythe, Minsmere and Alde) were undertaken by Andy Brooks (Wood) and Jonny Stone (vegetation ecologist) on 13 and 14 June 2016. Visits to green ranked sites were undertaken by EDF Energy in June 2017. Visits to sites screened in 2018 (those in the rest of Suffolk and any new parcels identified in 2018 in the Blythe, Minsmere and Alde river valleys) were visited by the same personnel on 12 and 13 June 2018.

## Step 4 Allocation of a Red/Amber/Green (RAG) Rating

A number of the objectives screened against require professional judgement (e.g. ease of accessibility). Therefore the RAG approach represents a gradation of potential suitability. The site visit element has significant weight in the RAG rating as this ground truths the GIS analysis and web-based data review.

Sites allocated Green will be carried forward into the next phase whilst Amber sites are on hold subject to further assessment of green sites. Red sites are least likely to be suitable and are very unlikely to be investigated further in future project phases.

## Stakeholder Inputs

Following completion of steps 1 and 2 in 2016 Natural England and Suffolk Wildlife Trust were asked whether they were aware of any other sites with potential and also for comment on the initial screening results.

Additionally at the initial kick off meeting in 2016, all stakeholders were asked whether they were aware of any additional potential sites inside/outside the study area that EDF Energy should consider scoping into the study.

The feedback from these consultations was included in the screening and ranking process in 2016. This stage has not been repeated in 2018 as the 2016 questions covered the potential for sites outside the study area.

## 2.4 Results

The 2016 and 2018 search areas are presented on Figure 2.1. The potential land parcels identified by the 2018 GIS screening, repeating the previous analysis but with updated GIS data, are very similar to the 2016 outputs and therefore the 2016 polygons have been retained as previously defined (even where the 2018 polygon shapes are slightly different). However where new potential sites have been identified located some distance from the 2016 potential sites these have been added to the screening process.

The results of the GIS screening from 2016 and 2018 are presented in Table A.1 in Appendix A. Table A.1 includes screening of additional sites identified by both Natural England and the RSPB in 2016. The screening has considered a total of 63 sites across Suffolk, 32 of which were located within the target search area in 2016. Sites 1 and 5 were identified by previous studies and were retained in the process although they were mostly located with CWS sites (as detailed in Amec Foster Wheeler, 2016).

The locations of the 69 land parcels identified by the GIS screening process are indicated on Figures 2.2x-y.

All the land parcels remaining in the process following Step 1 have been subject to further screening in Step 2 and also a site visit (Step 3). Sites 10/11 and 28 previously screened and visited in 2016, were revisited in 2018 and comments updated where appropriate.

The results for Steps 2 and 3 are indicated in Table A.2.

Screening omitting the Priority Habitat screening criterion, undertaken principally to identify potential 'pockets' of suitable land that may also be present in tributary valleys, identified very few potential land parcels and those that were identified were predominantly located adjacent to parcels previously allocated a red ranking and screened out as unsuitable or have no connectivity to other areas of suitable habitat. Therefore, with the exception of one parcel of arable (59) which has been included in the screening as it is located adjacent to a designated wet meadows site, these additional parcels have not been mapped or visited.



## Ranking of Land Parcels

Each of the 69 land parcels has been ranked using a RAG approach. As indicated in Section 2.3 a number of the objectives screened against require professional judgement however the site visit element has significant weight as this ground truths the GIS analysis and web-based data review. Nonetheless the RAG approach represents a gradation of potential suitability.

The site visit observations and RAG rating and supporting rationale are presented in Table 2.4. These have been updated as appropriate where additional visits undertaken by EDF Energy subsequent to the 2016 project phase, or as part of this project phase in 2018, have suggested that a site should be re-ranked.

Five sites have been given a green ranking (two identified new in 2018, one re-ranked from 2016, and 2 retained from 2016) and are recommended to be carried forward into the next phase whilst 17 sites are amber and are on hold subject to further assessment of green sites. However, it should be noted that the majority of the sites assigned an amber ranking are assigned this because they could not be assessed due to lack of access. It is had been possible to assess them, then based on likely similar sites in the vicinity, it is considered that they would probably have been assigned a red ranking.

The sites are indicated on Figures 2.3a-d.

Table 2.4 Site ranking

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
1	Beveriche, Yoxford	14.0	Not accessible from PRoW	In CWS and will not progress
2	Wenhaston / Blackheath	10.8	Semi-improved grassland. Rushes present. Ditches present. Potential to manage water levels However likely to be degraded peat. Well drained site. Large difference between field and river level Wettest, possibly lowest, areas at eastern end of compartment Potential for fen meadow development alongside ditches if it is possible to raise the levels sufficiently.	Needs further assessment of peat and extent to which it will be possible to raise water levels. More potential at eastern end of compartment than west? Potential for fen meadow establishment limited to ditch margins unless some land lowering is undertaken. Area of compartment east of road less suitable than to the west – hence this area actually mapped red.
3	Snape (Dunningworth Hall)	19.4	Extensive block of floodplain grassland with reed lined ditches and wetland / rush element. Little management apparent (other than water level control). Potential for water management although the EDF visit ruled the site out as levels are maintained too far below ground surface to establish fen meadow with little prospect of agreeing a change.	EDF Energy site visit ruled this site out as water levels too low to establish fen meadow.

<sup>6</sup> This is the area of the compartment meeting the screening objectives. An area taken forward for provision of compensatory habitat may not cover the full extent of the compartment area stated.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking	
			Potential to manage to create a significant area of mosaic of wetland habitats.	Too little of site on fen peat and ground rising away from the river also restricts potential for enhancement to fen meadow	
4	Westleton	2.8	Majority of land parcel too high and too dry. Lowest areas near to the river of very limited extent and not accessible from PRoW to view.		
5a	Land adjacent to Darsham Marshes (3 cmpts)	-	Not accessible from PRoW		In CWS and will not progress
5b	Land adjacent to Darsham Marshes (3 cmpts)	-	Not accessible from PRoW		In CWS and will not progress
5c	Land adjacent to Darsham Marshes (3 cmpts)	-	Not accessible from PRoW		In CWS and will not progress
5d	Land to south west of Darsham Marshes	2.6	Not accessible from PRoW		In CWS and will not progress
6	-	9.8	Extensive area of existing fen meadow seemingly in good condition. Very limited potential to enhance		Extensive area of existing fen meadow Potential for enhancement very low
7	-	2.4	Not accessible for site visit. However if similar to site 6 will be very limited potential to enhance.		Not accessible for site visit so stays in the process for now and hence given amber rating. However if similar to site 6 will drop out as limited potential for enhancement.
8	-	14.6	Not accessible for site visit		Lies within Abbey Farm ownership. Western area of site 8 is included within EA/RSPB Botany Marshes wetland creation site. Eastern area not included – no clear reason why but perhaps already valuable habitat? Not accessible for site visit so stays in the process for now and hence given amber rating
9	-	6.3	Very poor visibility. No evidence for groundwater seepage on the visible margin. No alders. From what was seen of the fields, no evidence that this is more than wet/rushy grassland with reeds in ditches and around the open waterbodies.		Probably within Abbey Farm ownership. Stays in as not satisfactorily assessed from the very limited visibility and hence rated amber. However, unlikely to offer potential.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
10	-	3.6	<p>Potential seepage from east. Extensive alder woodland areas. Valley bottom grassland not visible from track.</p> <p>Unclear re potential for water management.</p> <p>Adjacent to Manor Farm Meadows CWS so the block has connectivity to appropriate habitats and potential for enhancement.</p>	<p>The block has connectivity to appropriate habitats and potential for enhancement.</p> <p>Not visited as part of EDF visit and therefore retains interest.</p>
11	-	6.1	<p>Floodplain grassland retains FM species and also relict ditch system. Both positive and negative indicator species present so potential for enhancement in this respect and also relatively heavy grazing currently. Peat probably in good condition. Field surface only elevated around 30-45cm above the water level in adjacent watercourses.</p> <p>Significant potential for enhancement. Located across the ditch from Manor Farm Meadows CWS - a small but rich area of fen meadow habitat - so connectivity good at this site. Revisited in 2018 and still considered to retain potential although the approach to raising water levels will be a challenge.</p>	Significant potential for enhancement.
12	-	14.7	<p>Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible (although not accessible).</p> <p>No visible potential to manage water. Fields several feet above river level. Peat likely to be degraded.</p>	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
13	-	22.6	<p>Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible (although not all visible or accessible).</p> <p>No visible potential to manage water. Fields several feet above river level. Peat likely to be degraded.</p>	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
14	-	4.8	Not visit as not accessible however no reason to believe it will be different to site 13.	Considered very unlikely to have potential to develop fen meadow habitat without significant engineering works, if possible at all.
15	-	9.2	<p>Tall agricultural grassland mix. Improved to SI grassland</p> <p>No wetland element visible (although not accessible).</p> <p>No visible potential to manage water. No clear source of water. Peat likely to be very degraded.</p>	No potential to develop fen meadow habitat without significant engineering works, if possible at all.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
16	-	8.8	Not accessible from PRoW	<p>Considered very unlikely to have potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p> <p>Reported to be prone to saline flooding which is undesirable for fen meadow (Suffolk Wildlife Trust, pers comm.).</p> <p>Reported to be prone to saline flooding which is undesirable for fen meadow (Suffolk Wildlife Trust, pers comm.)</p> <p>No potential to develop fen meadow habitat without significant engineering works, if possible at all.</p>
17	-	10.0	Viewed from footpath adjacent to the A12. Improved and drained grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works	
18	-	2.8	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.	
19	-	3.5	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.	
20	-	4.5	Mostly short grazed dry grassland Large difference between river level and field level so significant drainage gradient. Also narrow site. Little or no potential for FM without significant engineering works.	
21	-	21.6	Not accessible from PRoW.	
22	-	13.9	Not accessible from PRoW.	
23	-	14.5	Limited visibility from western end. However tall agricultural grassland mix. Improved to SI grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient. No water management mechanism evident. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works	

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
23a	-	3.7	Not accessible from PRoW	Not accessible for site visit so stays in the process for now and hence given amber rating. But if similar to 23 then very unlikely to take forward.
24	-	12.2	Agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient. Single ditch in field and so very limited potential to manage water. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
25	-	5.6	Rush pasture to south of river. Heavily grazed by cattle currently. Large difference between river and field level so significant drainage gradient. Ditch present but limited potential to manage water given the elevation of the fields relative to the river.	
26	-	8.3	Tall agricultural grassland mix. Improved to SI grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient. No ditches present. No potential to manage water Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.	
27	-	9.6	Not accessible from PRoW. However if similar to 35 and 34 then no prospect of being suitable	
28	-	3.6	Interesting site. Combination of cattle and sheep grazing on-going with sheep on elevated ground and cattle in the rushes. Rush pasture. Revisited in 2018 and noted jointed rush north of the first ditch, potentially indicating groundwater influence. It appeared that there would be potential to manage (maintain) water levels in ditches and currently ditch levels are within 30-60cm of field surface Although there would still be a question over the state of the peat –	

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
			further investigation into potential for enhancement is recommended.	
29	Walpole Bridge Meadows'	5.6	Dry river corridor with only rare alders. Only wetland herbs restricted to shallow ditches - appears to be Reed Canary Grass. No evidence seen (from road only) for seepage. C. 7ft freeboard in stream. Little or no potential for restoration.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
30	-	2.5	Not accessible from PRoW.	Not accessible for site visit. Desk-based review suggested access may be problem but remains in process as unable to confirm at this stage.
<b>Natural England Suggestion</b>				
31	-	2.3	Not visited at this stage as in South Norfolk	Probable potential for enhancement based on NE comments but not visited as too far from Sizewell. Remains in reserve at this stage.
<b>Results of Whole of Suffolk Screening 2018</b>				
32	Heveningham (u/s of road)		Extensive shallow lake already created in this area. Appeared recent as margins looked recently seeded. Shallow scrapes also created adjacent to the lake but on the other side of the river channel. Could not see further up the valley to determine how these, or the lake, were supported. May be scope for fen meadow further up the valley for fen meadow but not visible.	Lake created in valley bottom. May be potential for fen meadow further up the valley but not accessible to assess, so remains in process as unable to confirm at this stage.
32a	Heveningham (d/s of road)		Looks like lake has been extended recently. Polygon area highlighted on the plan has recently been graded and reseeded. Also, sloping and not wet. No prospect of fen meadow at this location.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
33	Stratford St Andrew		Interesting site. Accessible from public footpath at southern end. Band of hard rush located in field, offset from ditch, suggesting chalk groundwater near surface. Peaty soil at the surface (evidence from mole hills). Ditch network may offer potential for management to raise water levels locally. May need some ground level lowering in a strip away from the river to develop fen meadow although this	Further investigation recommended, including scoping the specific areas to target as the possible area is large but public access was limited to a single footpath.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
			may also increase uncertainty as to the outcome. Requires further investigation.	
34	The Old Forge		Tall dry grassland. No obvious wetland element. Field level well above the river. No prospect of water level control.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
35	Latymere Dam		Large area but not publicly accessible. Elevated margins used for grazing horses. Definitely appeared to a wetter area on the middle, with plenty of ditches but not accessible or clearly visible. Key issue would likely be the difficulty of manipulating water levels over a small area surrounded by other landowners.	Unable to fully assess but key issue would likely be the difficulty of manipulating water levels over a small area surrounded by other landowners.
36	Share Marsh		Marshes now included in the Broads Southern Gateway project. Cannot be progressed as part of this study.	Not available
37	Land adjacent to Marsh Lane (north of railway)		Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface. In pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
38	Land adjacent to Marsh Lane (south of railway)		Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface. In pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
39	Woodview Farm		Fields dry and very heavily grazed. Alder woodland along the eastern edge probably demarcates the extent of wetness. No obvious mechanism for wetting the area. Likely, at least in part, underlain by sands and gravels. No prospect of establishing fen meadow.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
40	South of Beccles Golf Course		Viewed from northern edge looking south. Not accessible otherwise.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking	
			Fields heavily grazed. Certainly dry along the norther margin. Looks to be wetter areas in the lower lying land but these were not clearly visible. No clear mechanism for manipulating water levels. Likely, at least in part, underlain by sands and gravels. Not sufficiently visible to fully assess prospect of establishing fen meadow but considered unlikely.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.	
41	Land off Green Lane		Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface. Likely in pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.		
42	Benstead Marshes		Only visible from road so was not possible to assess potential adequately but visible areas have been well drained. Likely that water level control would be difficult.		
42a	Bungay Grassland		Not accessible from PRoW. Not visited.		Not accessible for site visit. Desk-based review suggested access may be problem but remains in process as unable to confirm at this stage.
43	Land west of Bungay		Visited but not sufficiently visible to assess adequately. Ditches present, with wetland vegetation but grassland did not appear to have wetland component.		
44	Land to rear of Oaklands Farm		Not accessible from PRoW. Not visited.		Remains in process as unable to confirm potential at this stage although, in common with other sites along the Waveney, low (if any) potential for fen meadows
45	Land east of Marsh Plantation		Not accessible from PRoW. Not visited.		
46	Land north of Long Plantation		No public access. From roadside view, ditch water level was near to field level but much of the area appeared to have been ploughed and seeded. It was not clear what had been planted at this stage, but looked like arable crop.		Appears to have been ploughed. No potential to take forward at this stage.



Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
47	Land north of Lake at Shotford Bridge		Looked dry grassland. No prospect of fen meadow.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.
48	Land west of Weybread House		Could not get close enough to assess in detail. Ditches present although likely quite dry as more nettle than wetland vegetation visible. Grassland looked dry, with no wetland component. Site on a bit of a slope. Considered no prospect.	
49	Land north of Wingfield Road, adjacent to STW.		Fields too high above the river water level. Ditches looked likely to be dry. Dry grassland with no wetland element. Farmer letting animals drink direct from the river leading to sediment erosion. No prospect of fen meadow.	
49a	Land south of Wingfield Road		Not accessible from PRoW. Not visited.	
50			No public access but looked dry from road (and from aerial photograph). Dominated by <i>Holcus</i> . No wetland element in the sward. No clear prospect of managing water levels.	
51			Not accessible from PRoW. Not visited.	Remains in process as unable to confirm potential at this stage although, in common with other sites along the Waveney, low (if any) potential for fen meadows
52			Not accessible from PRoW. Not visited.	Remains in process as unable to confirm potential at this stage although, in common with other sites along the Waveney, low (if any) potential for fen meadows
53	Land east of Low Road		Only visible at western end. Ditches not visible. Site dominated by tall <i>Holcus</i> grassland. No wetland element. No clear prospect of wetting the area or developing fen meadow.	Remains in process as unable to confirm potential at this stage although, in common with other sites along the Waveney, low (if any) potential for fen meadows.
54	Pakenham Fen		Interesting site but access to the large area limited to a single footpath across the area towards its northern end. Good quality, if slightly under-managed fen meadow in Pakenham Meadows SSSI to east of river.	Further investigation recommended, including scoping the specific areas to target as the possible area is large but public access was limited to a single footpath.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
			<p>Area of interest includes land immediately south of the SSSI and also to the west of the river (which was visited).</p> <p>Land to the west of the river is heavily cattle grazed currently. It is likely to have been fen meadow in the past. JS found <i>Calliergonella</i> remaining in the sward. However very few / any broad-leaved herbs remain in the sward suggesting possible use of some sort of selective sward.</p> <p>River level high relative to the adjacent fields.</p> <p>Potential to manage / manipulate water levels in the ditches to the west of the river. If that was possible, and relaxed grazing, potential for gradual rewetting and perhaps re-establishment of fen meadow with time.</p> <p>Areas to the south of the SSSI look potentially wetter on the aerial, and are adjacent to the CWS.</p> <p>Definitely a site worth revisiting if wider access can be arranged. Further investigation recommended.</p> <p>Useful information as a site account for the SSSI in A Wetland Framework for Impact Assessment at Statutory Sites in Eastern England (Wheeler and Shaw, 1999).</p>	
55	Land south of railway and RSPB Lakenheath		<p>Polygon area not visible as too far from road. No public footpaths.</p> <p>Grassland classified as CFPGM extends to road but not included in polygon as not mapped as fen peat.</p> <p>Pump drained area. Water level 1-1.5m below field level.</p> <p>On aerial photo grassland looks dry. Large agricultural area and likely that attempts to raise water levels would conflict with agricultural interests in this large block.</p> <p>No clear prospect of wetting the area or developing fen meadow.</p>	No clear prospect of wetting the area or developing fen meadow without significant engineering works, if possible at all.
56			Not accessible from PRow. Not visited.	Remains in process as unable to confirm potential at this stage although, based on location and water management in the area, low (if any) potential for fen meadows.
57	Lake Hall Farm		<p>Looks dry from aerial photograph.</p> <p>Main grazing field in front of farm.</p> <p>Pump drained area.</p> <p>Likely that attempts to raise water levels would conflict with agricultural interests in this large block. Location</p>	No clear prospect of wetting the area or developing fen meadow without significant engineering works, if possible at all.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking
			of field also likely to make it unfavourable prospect for landowner.	
58	Land east of Isleham Marina		Area already highly managed by marina. Single block of dense reed on southern edge and then rough grassland. Access problematic. Quite wet on edge of a lake. Unlikely to be possible to manipulate water levels. Little prospect of altering character to fen meadow.	
59	Land west of Norah Hanbury Meadows SWT Nature Reserve		Arable in cultivation. Site elevated above adjacent reserve so no prospect of fen meadow.	
60	Land south of Lackford Lakes SSSI		Part of West Stow Country Park and already managed. No ditches present. No prospect of raising water levels or of establishing fen meadow.	
61	Land off Chediston Street Halesworth		Site on a significant slope. Western field horse grazed and dry. Potential seepage area in middle of eastern field with wetland vegetation (willow, alder, iris) but very discrete area. No apparent seepage downslope, although not very visible from roadside. Considered unlikely to be possible to extend the seepage area. Significant drop to marginal ditch water level in east. No prospect of increasing water levels or of establishing fen meadow.	
62	Land at Uggeshall		Possible catchdyke present with several cross drains, which were wet. No evidence of seepage. Although river level within 1m of the surface, the vegetation was more floodplain grassland than fen. No fen species. May be possible to control water levels but would need to be accompanied by scraping to lower the ground surface with uncertain likelihood of success.	
62a			Not accessible from PRow. Not visited.	

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>6</sup>	Site visit observations	Ranking	
63	Land south of Snape Watering		Mostly tall dry grassland. Some wet areas visible at a distance associated with ditches, and possibly an area of open water (difficult to see). No obvious wetland species in the main sward. Considered to be little prospect of manipulating water levels or establishing fen meadow.	No potential to develop fen meadow habitat without significant engineering works, if possible at all.	
64			Rough grassland. Aerial suggest heavily used by residents of adjacent estate. Ditches overgrown or in-filled. Immediate juxtaposition of estate and heavy public access not favourable. Not visited		
65			Not accessible for site visit but looks unsuitable from aerial photograph.		
66			Not accessible from PRow. Not visited.		Remains in process as unable to confirm potential at this stage although, based on location and water management in the area, low (if any) potential for fen meadows.
67			Looks unsuitable on aerial. Dry agricultural grassland. Not visited.		No potential to develop fen meadow habitat without significant engineering works, if possible at all.
68			Looks unsuitable on aerial. Dry agricultural grassland. Not visited.		No potential to develop fen meadow habitat without significant engineering works, if possible at all.
69	Land adjacent Tuddenham Road		Looks improved on the aerial. No prospect of raising water levels given absence of ditches. Not visited.		No potential to develop fen meadow habitat without significant engineering works, if possible at all.

## 3. Conclusion and Next Steps

### 3.1 Conclusions

Following the desk study, as reported in Fen Meadow Compensation Study – Approach and Initial Site Screen Report (Amec Foster Wheeler, 2016), restoration is the approach considered most likely to deliver sustainable fen meadow habitat in the long term for this scheme and is the preferred approach to compensate for any unavoidable loss of fen meadow habitat at Sizewell Marshes.

The GIS analysis, review of web-based data, and consultations with stakeholders in 2016, identified a total of 69 sites that were then visited in 2016, 2017 or 2018, where access was possible from PRoW. Five sites have been given a green ranking (two identified new in 2018, one re-ranked from 2016, and 2 retained from 2016) and are recommended to be carried forward into the next phase whilst 17 sites are amber and are on hold subject to further assessment of green sites. However, it should be noted that the majority of the sites assigned an amber ranking are assigned this because they could not be assessed due to lack of access. If it had been possible to assess them, then based on likely similar sites in the vicinity, it is considered that they would probably have been assigned a red ranking. The remaining sites were considered least likely to be suitable and are very unlikely to be investigated further in future project phases.

It is considered that each of the sites given a green rating would be of sufficient area to provide fen meadow habitat capable of compensating for unavoidable losses at Sizewell, although the work required to restore fen meadow to each would likely be different, and each would support different quantities/qualities of fen meadow.

### 3.2 Next Steps

It is suggested that the next steps (Phase 2) should comprise:

- Undertaking a brief consultation exercise with stakeholders (specifically Natural England, Suffolk Wildlife Trust and Suffolk County Council). Although these stakeholders were consulted during the previous project phase and were asked about potential sites in the wider area, the identification of some further potential target sites now may prompt additional local knowledge in respect of, for example, any local initiatives that may be underway in the vicinity of these areas that it would be important to be aware of before any approaches are made to landowners.
- Informal consultation with landowners by EDF indicating the scope of the study and requesting access for a one day visit.
- A one day site visit to each potential site comprising:
  - ▶ A walkabout survey to identify areas where (1) the peat is currently influenced by groundwater or near-surface seepage; and (2) fen meadow species are present within or close to the site margins.
  - ▶ A reconnaissance hand augering survey to identify general peat quality (substrate condition), sub-surface geological materials, presence of water table and areas of upwelling groundwater.
  - ▶ Consideration of broad options for water management and potential for changes to land management.

- Report on the findings of these visits, update the assessment of site suitability and provide an assessment of what could be possible in respect of establishing fen meadow habitat, including initial high level conceptualisation.
  - ▶ Where it is proposed a site be taken forward, then the scope of further investigations required will also be defined.
- EDF then use this information to make a decision on whether to proceed with one of the sites, or take an alternate approach.

Once a decision is made on taking sites to Phase 3 then more detailed site conceptualisation and feasibility assessment work would be undertaken. Conceptual models of sites would need to be developed for the site(s) based on detailed data review and investigations and would likely include:

- Detailed ecological survey;
- Review of available groundwater level data (including output from the Environment Agency model for high, low and average groundwater level conditions) and the seasonal variation in groundwater levels. Also effects of groundwater abstraction on groundwater levels below the site;
- Collection of surface water level and groundwater level data to determine the relationship between groundwater and surface water levels on site; and
- Collection of hydrochemical data.

Assessment of feasibility of restoration of fen meadow habitat and preliminary conceptual design of the preferred option(s) will consider:

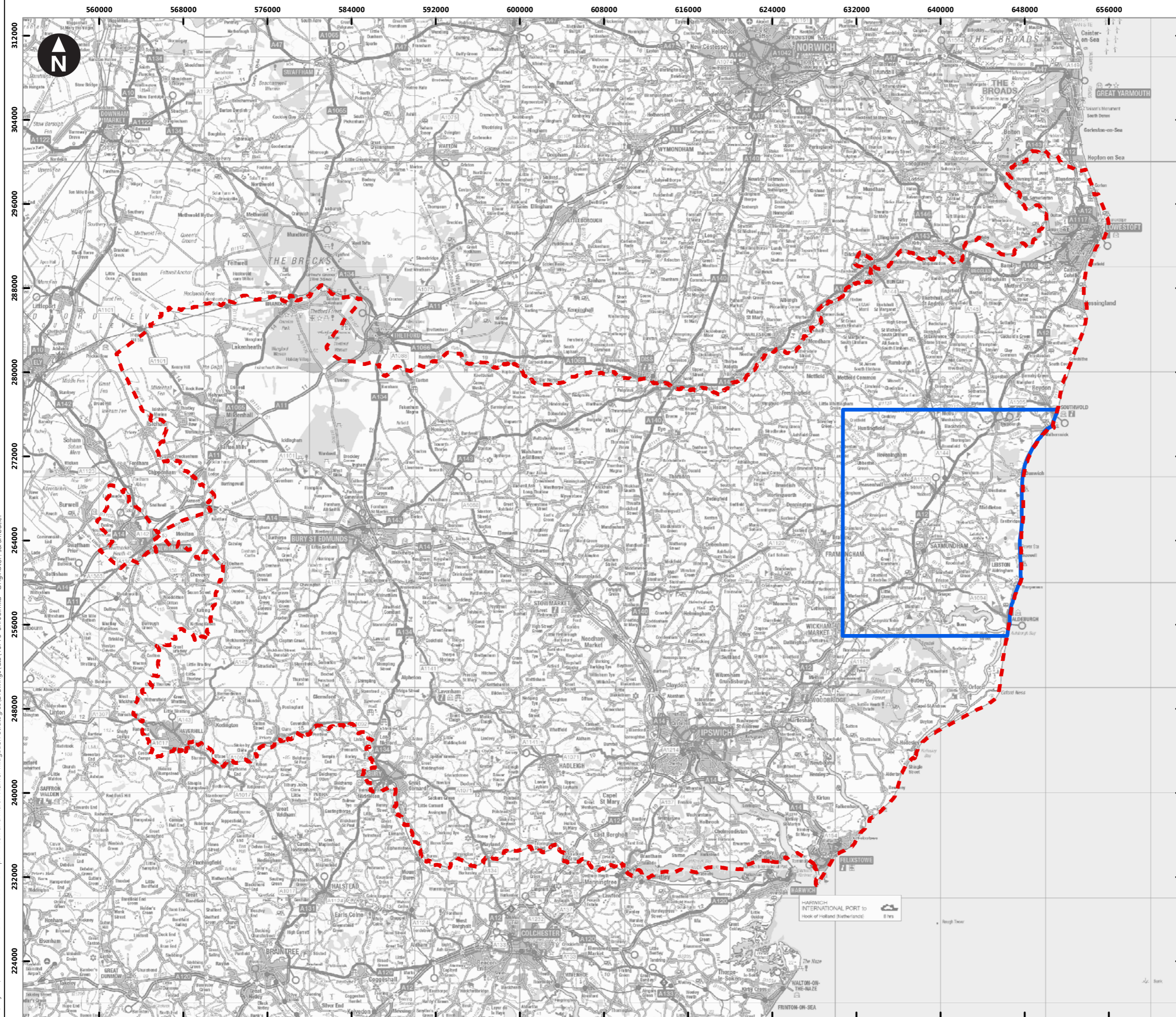
- Most appropriate restoration methods;
- How water levels could be managed (if needed);
- To what extent earthworks will be required. As indicated earlier, EDF would ideally prefer to avoid significant earthworks as this would be costly, would likely require loss of existing habitats/start from scratch and hence introduce significant uncertainty into the outcome.

Additionally, it will be possible during Phase 2 to consider whether a scheme to deliver compensatory fen meadow habitat could also deliver benefits under the Water Framework Directive for example, where adjacent watercourses are in need of restoration (i.e. whether there is potential for river improvement to be incorporated into the scheme).

The long term security of the chosen site is critical. Once selected the site will need to be owned by a conservation organisation or there should be a management agreement with a conservation organisation. Appropriate resources will be needed to implement the management plan. Monitoring will be required and measures put in place to amend the management plan if necessary to ensure favourable condition of the site. EDF intends to put such measures in place for the chosen site(s) for the long term.

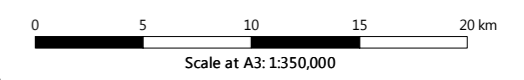
# Figures





Key

- 2016 Study Area
- 2018 Study Area



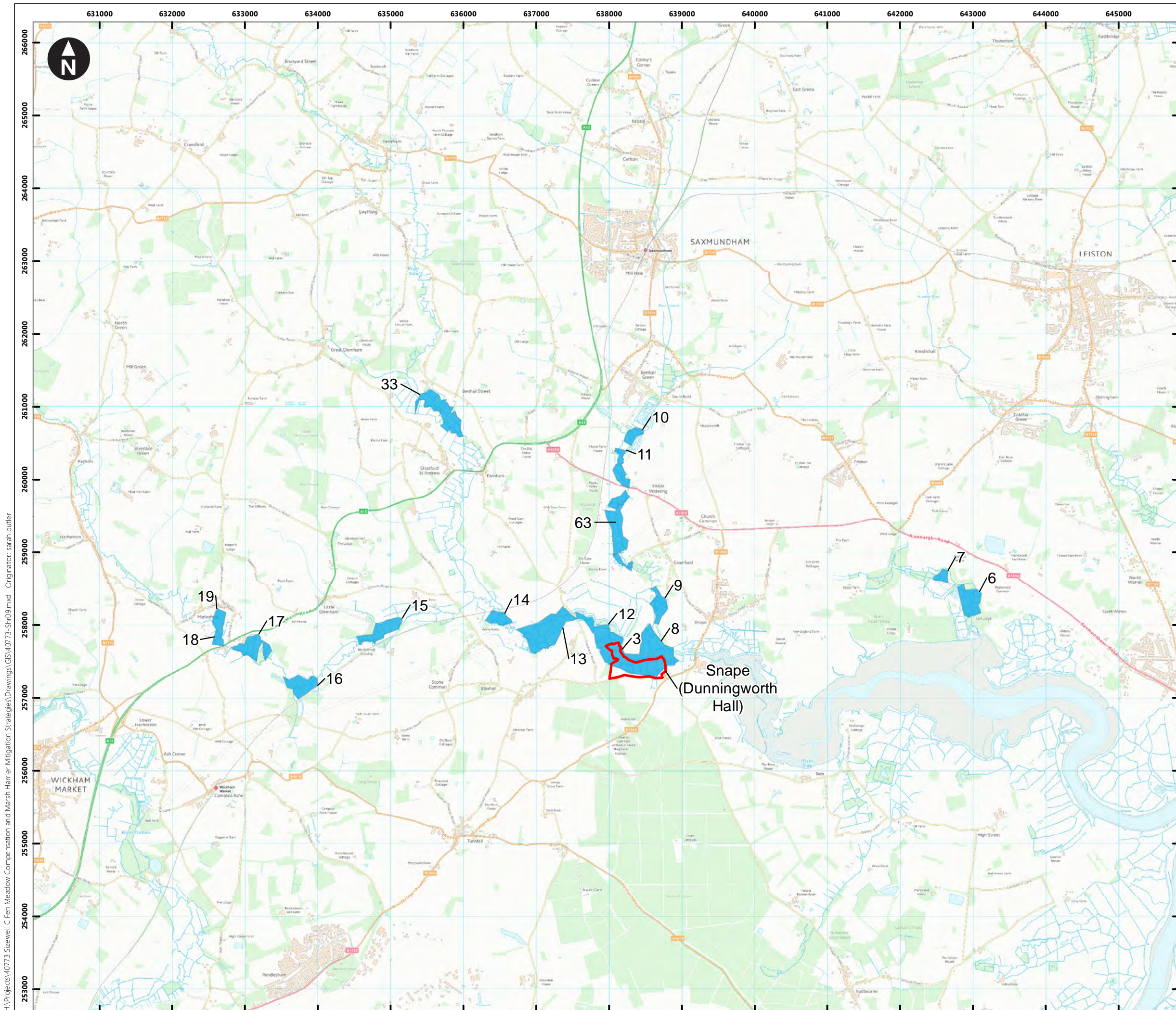
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Approach and Site Screen Report 2018

**Figure 2.1**  
2016 and 2018 Search Areas

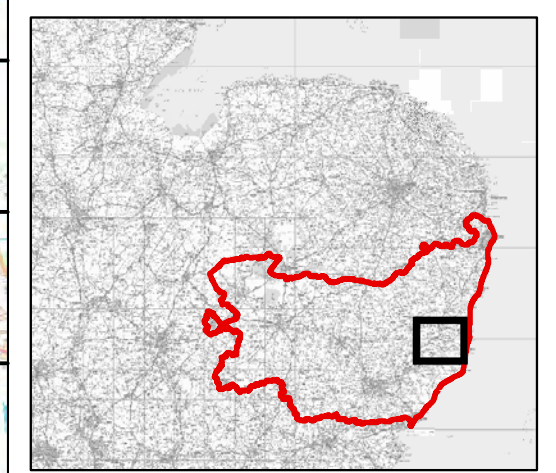
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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



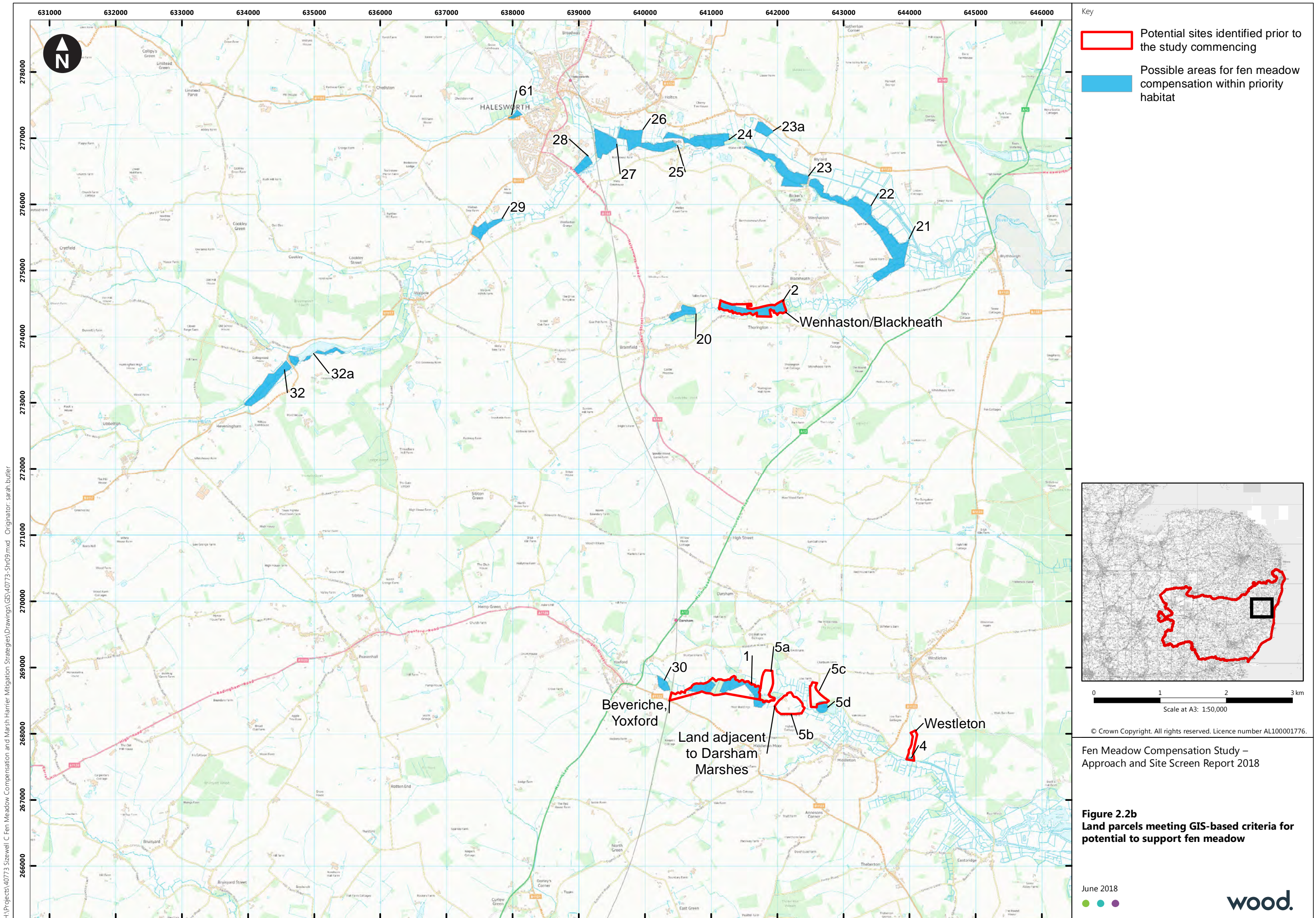
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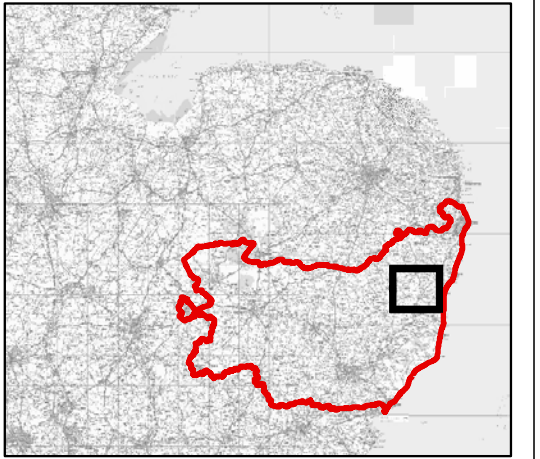
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**Figure 2.2a**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

H:\Projects\40773 Sizewell C Fen Meadow Compensation and Marsh Harrier Mitigation Strategies\Drawings\GIS\40773-Sh09.mxd Originator: sarah.butler



- Key
- Potential sites identified prior to the study commencing
  - Possible areas for fen meadow compensation within priority habitat



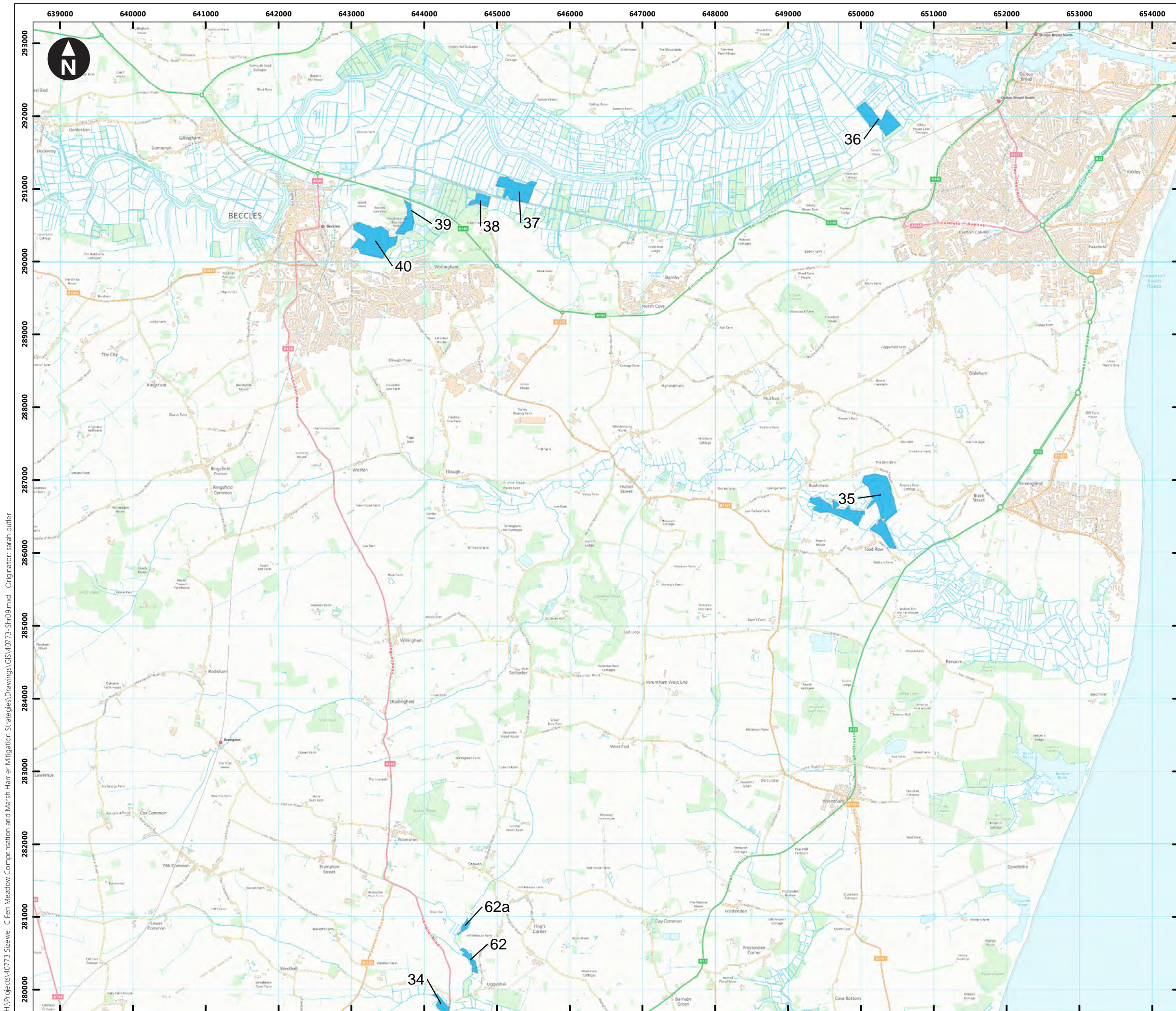
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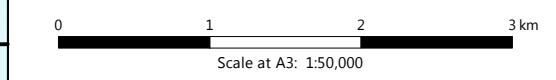
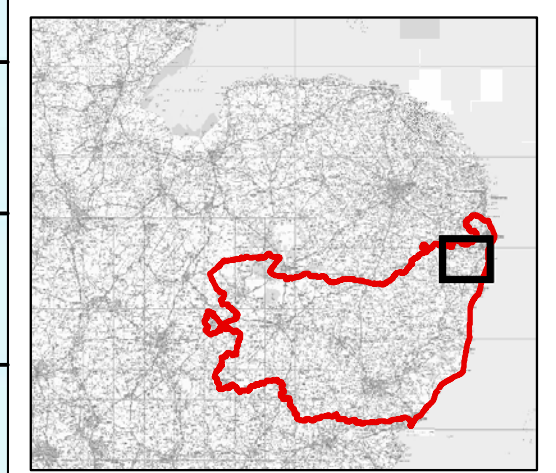
**Figure 2.2b**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat

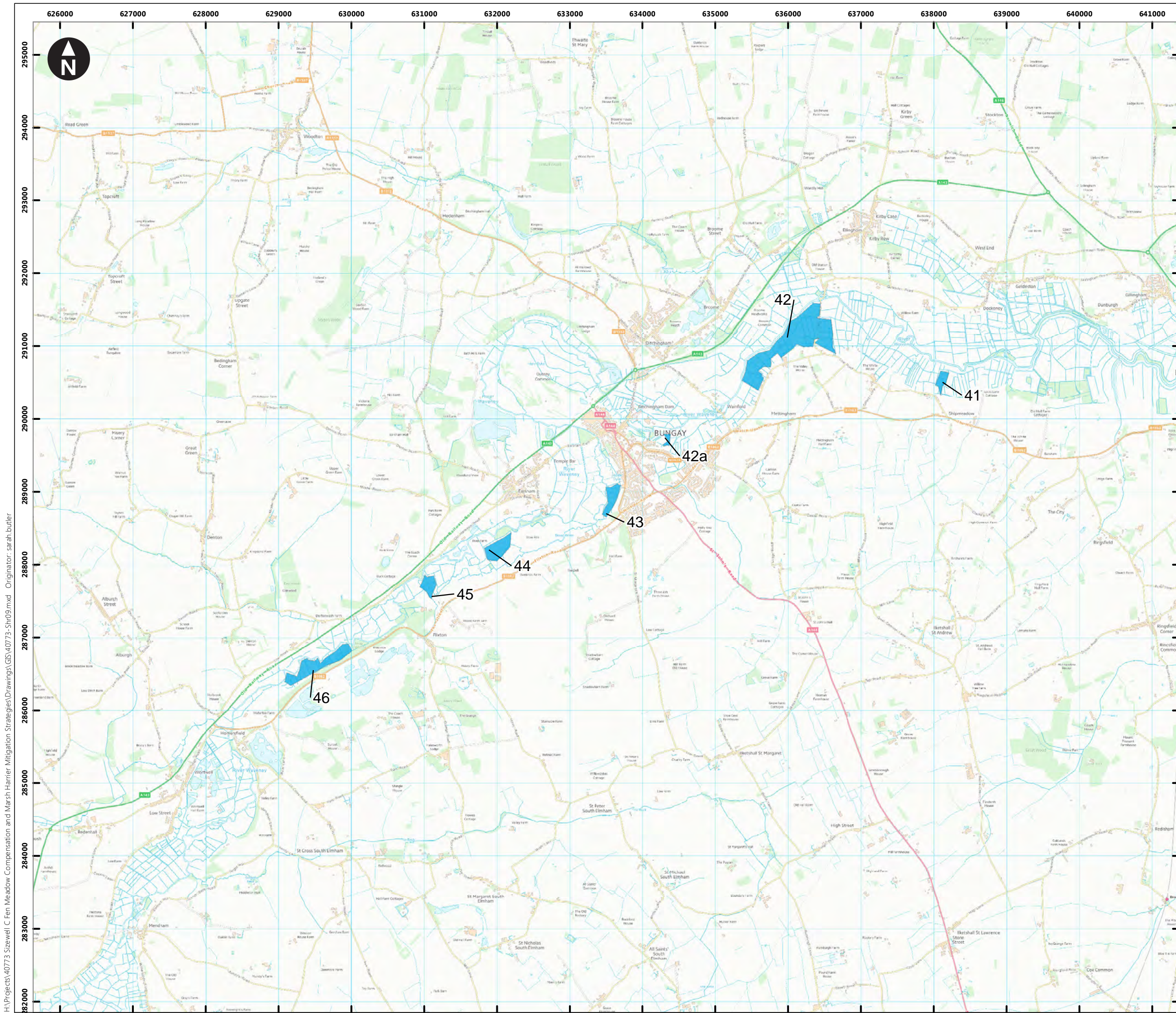


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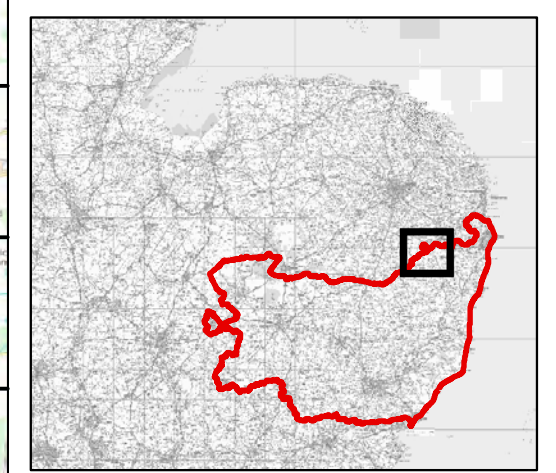
**Figure 2.2c**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



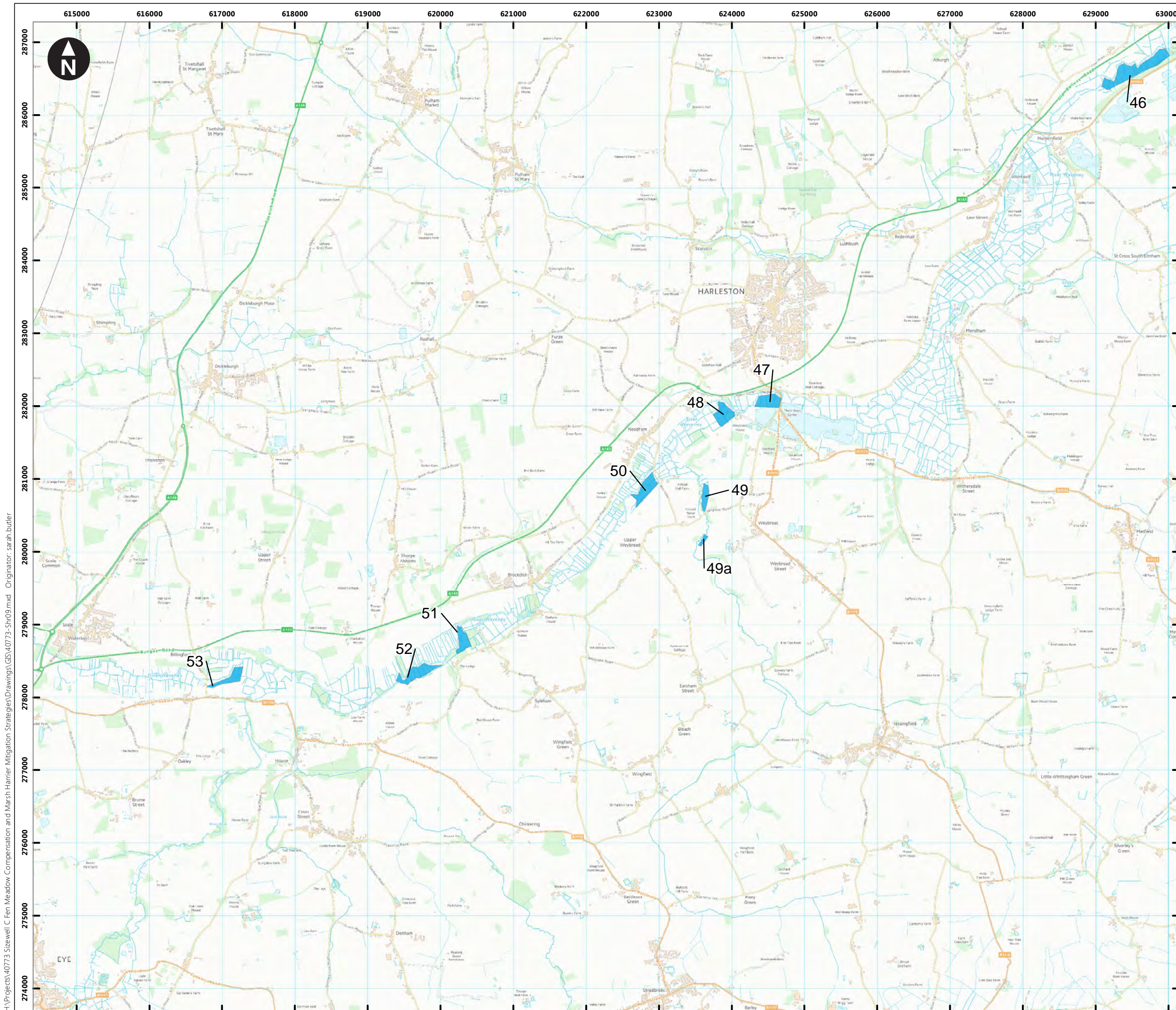
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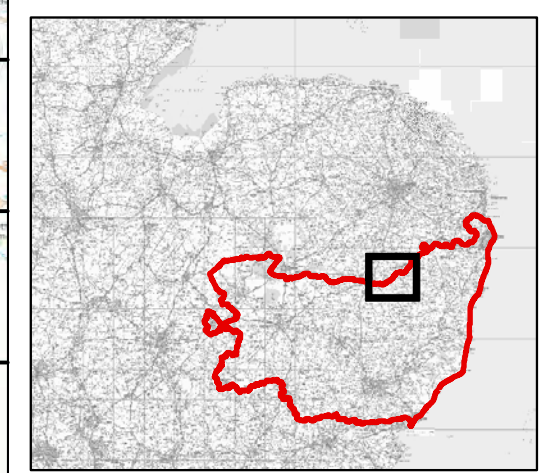
**Figure 2.2d**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



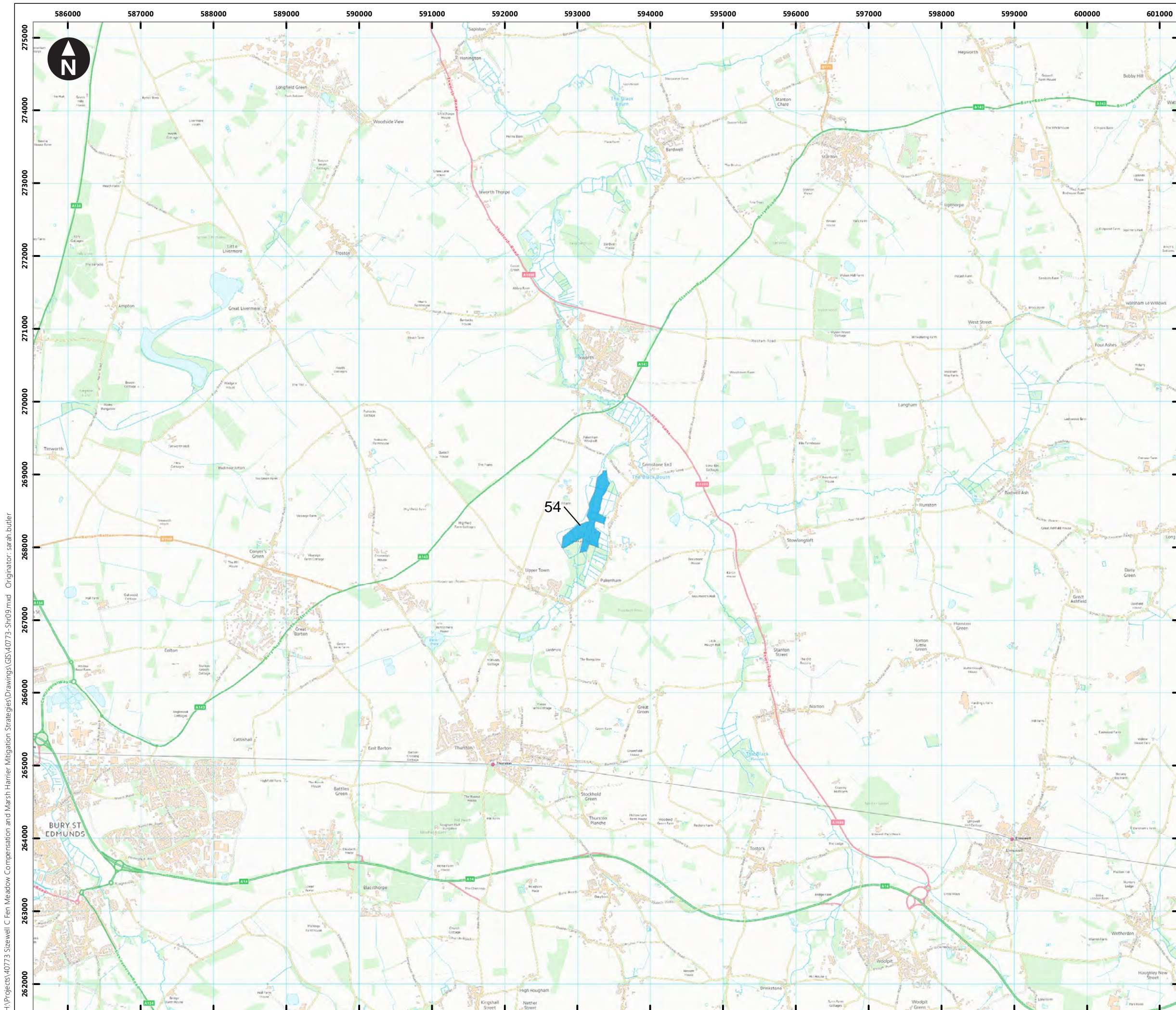
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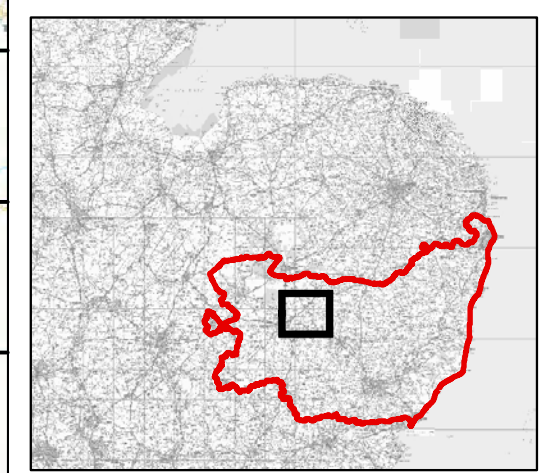
**Figure 2.2e**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



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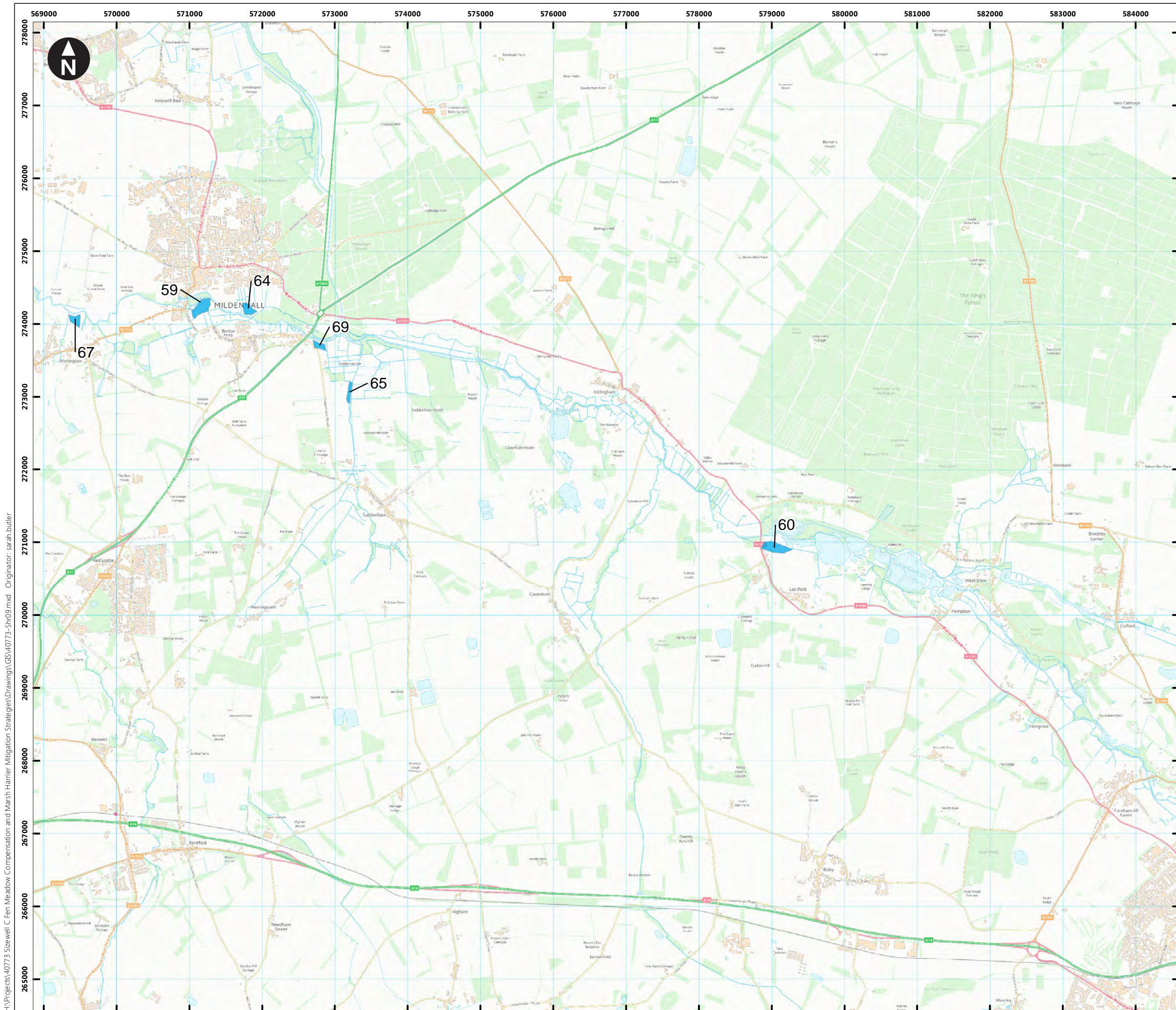
Fen Meadow Compensation Study – Approach and Site Screen Report 2018

**Figure 2.2f**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

June 2018

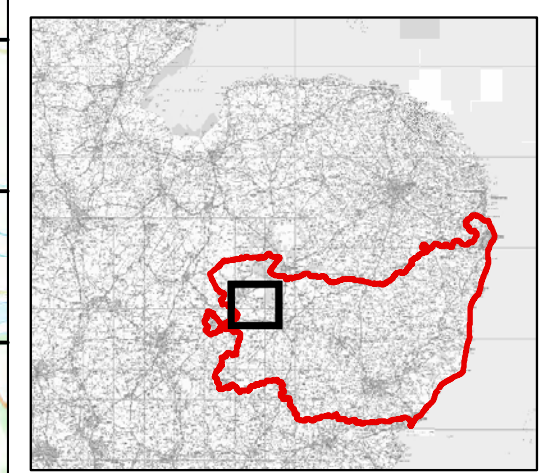


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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



Scale at A3: 1:50,000

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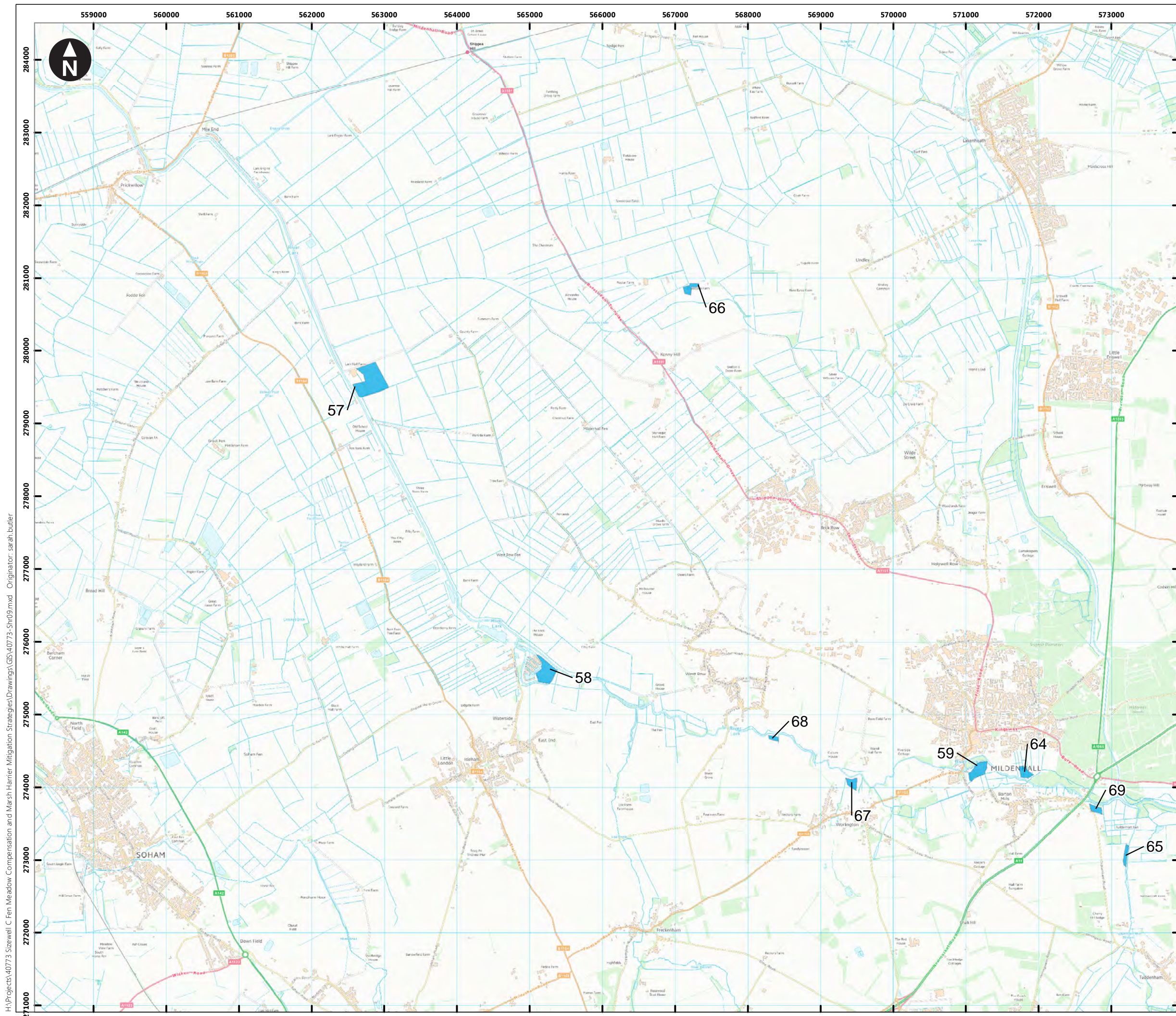
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**Figure 2.2g**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

June 2018

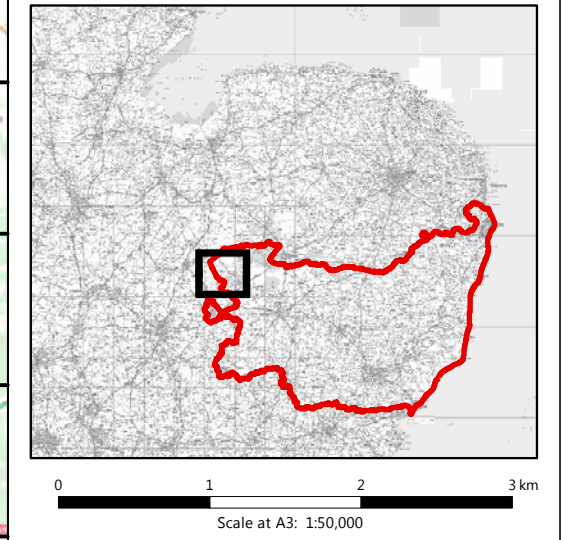


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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



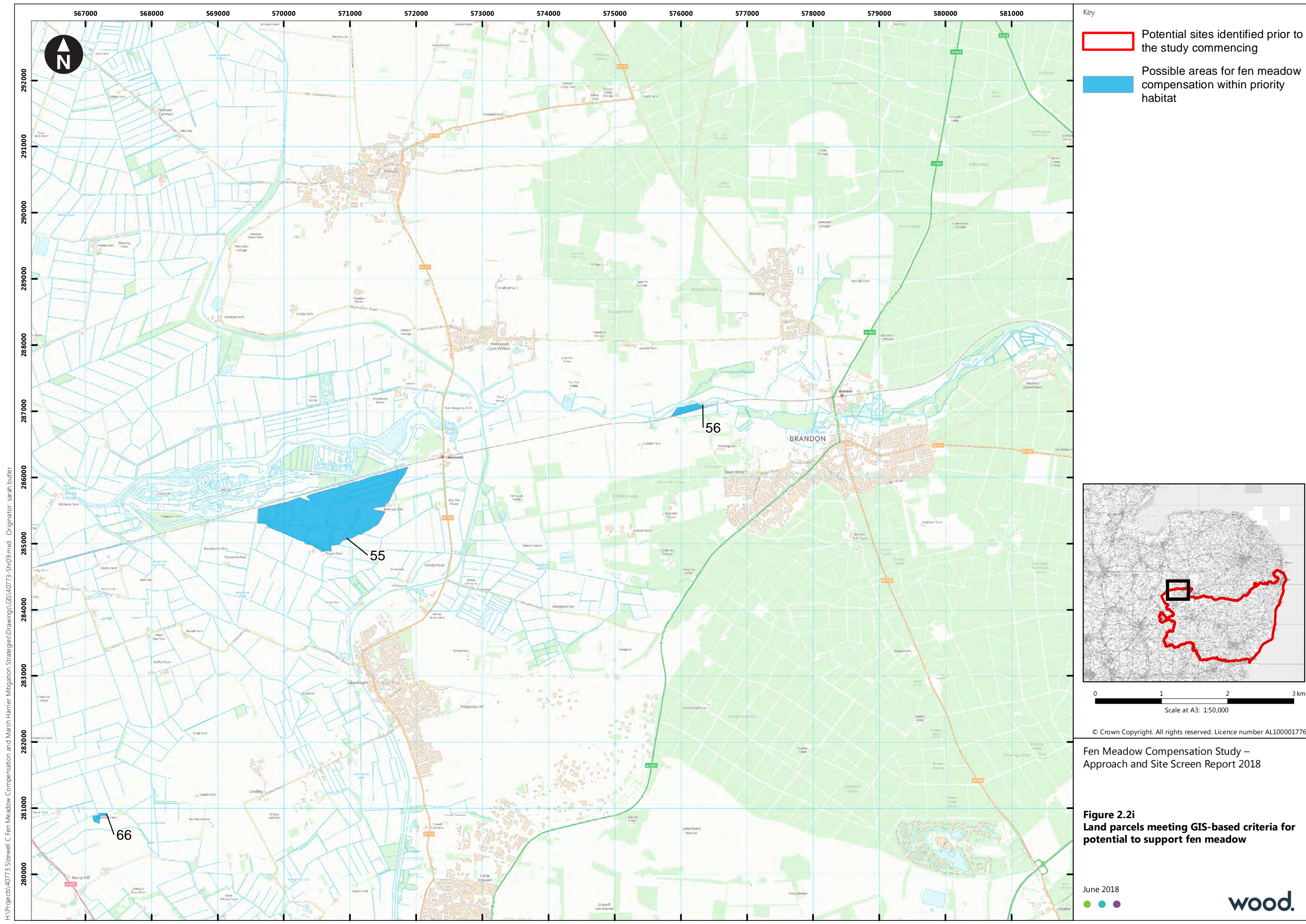
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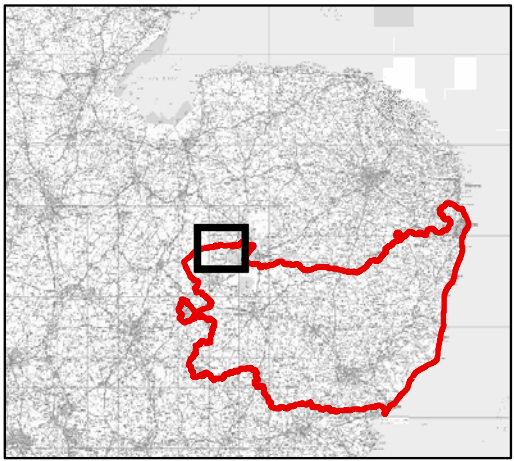
**Figure 2.2h**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

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- Key
- Potential sites identified prior to the study commencing
  - Possible areas for fen meadow compensation within priority habitat



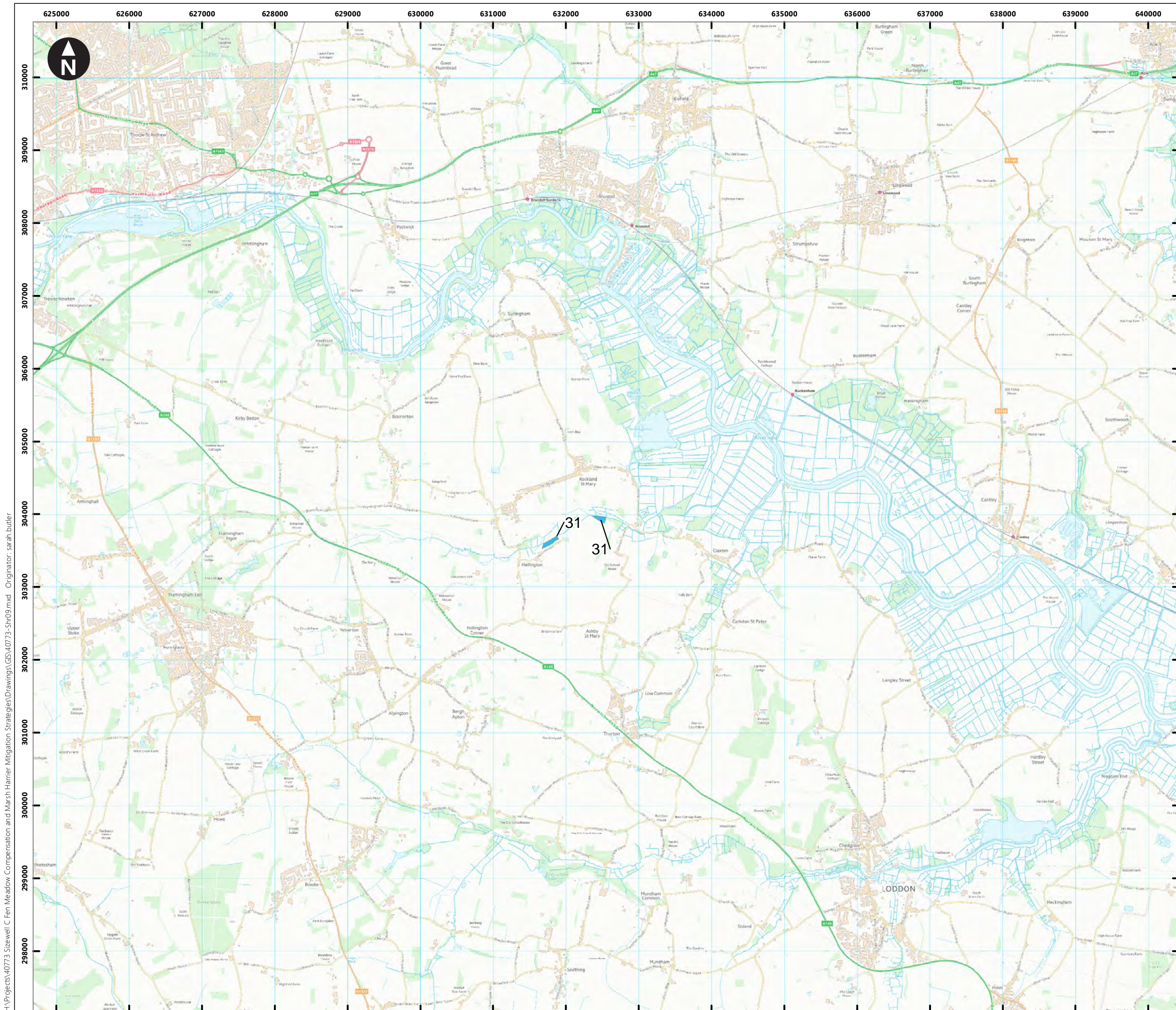
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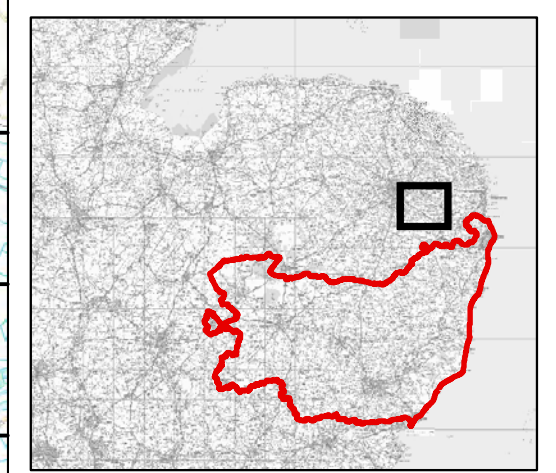
**Figure 2.2i**  
**Land parcels meeting GIS-based criteria for potential to support fen meadow**

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat



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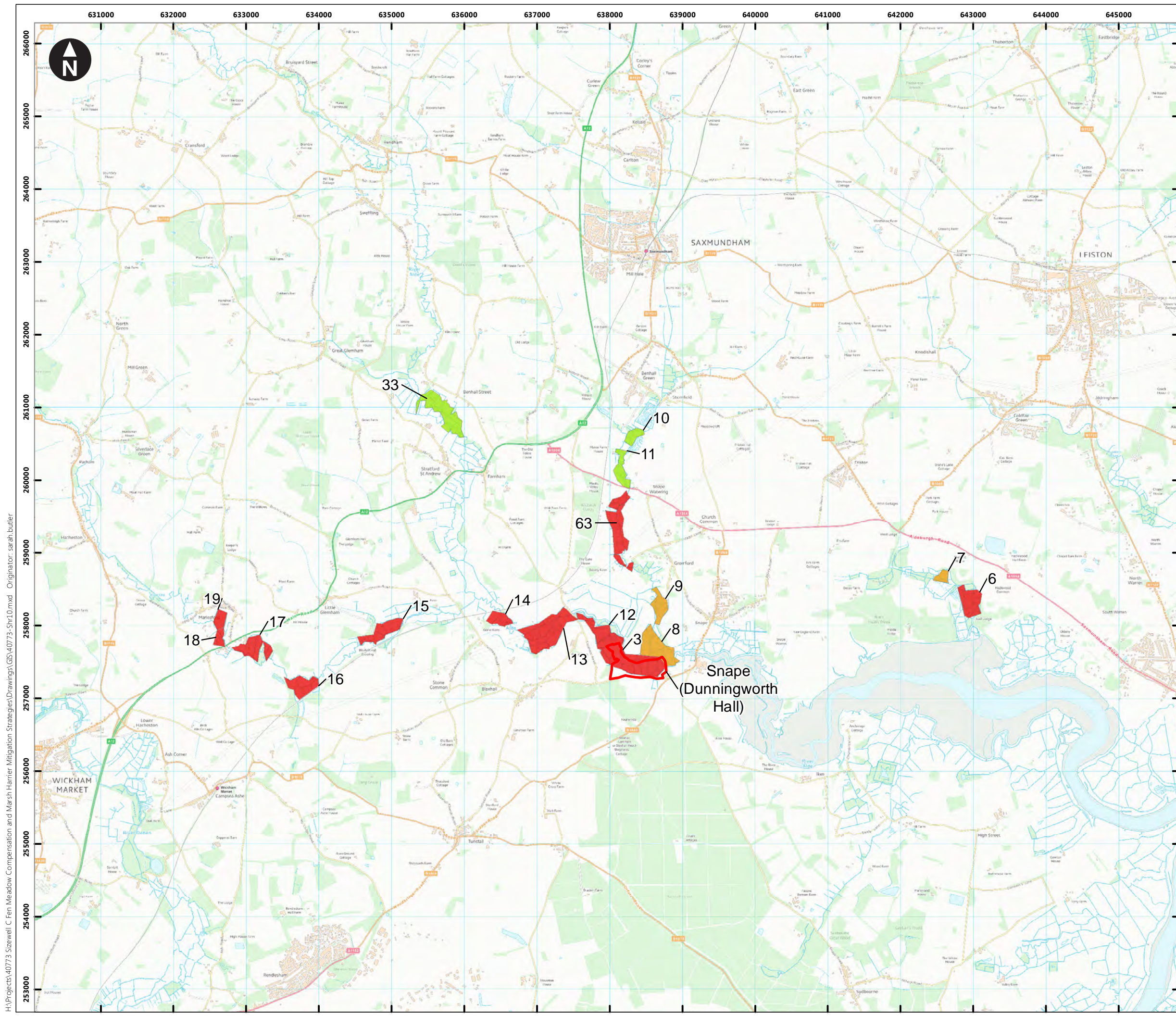
Fen Meadow Compensation Study – Approach and Site Screen Report 2018

**Figure 2.2j**  
Land parcels meeting GIS-based criteria for potential to support fen meadow

June 2018



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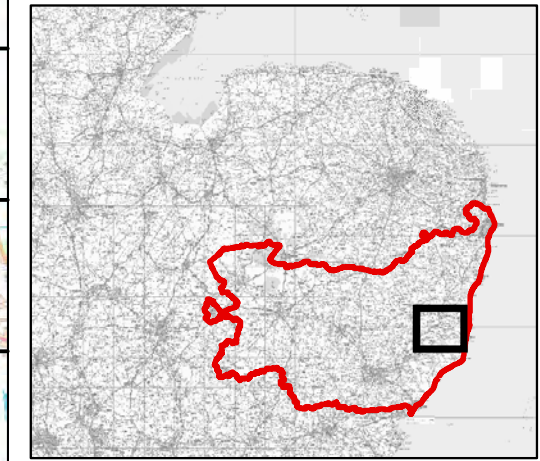


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed



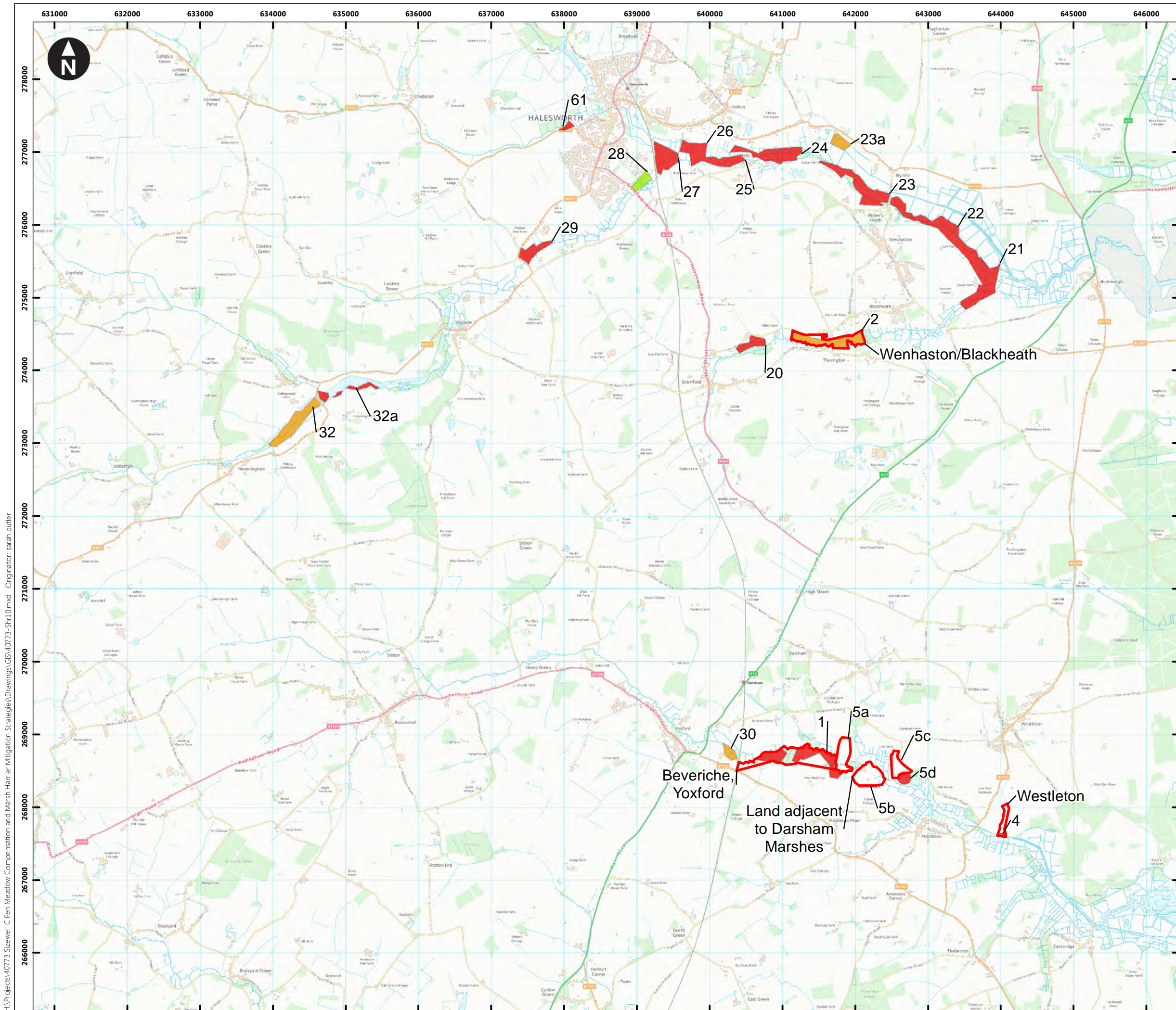
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Scale at A3: 1:50,000

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**Figure 2.3a**  
RAG rating of land parcels with potential to support fen meadow

H:\Projects\40773 Sizewell C Fen Meadow Compensation and Marsh Harrier Mitigation Strategies\Drawings\GIS\40773-Snr10.mxd Originator: sarah.butler

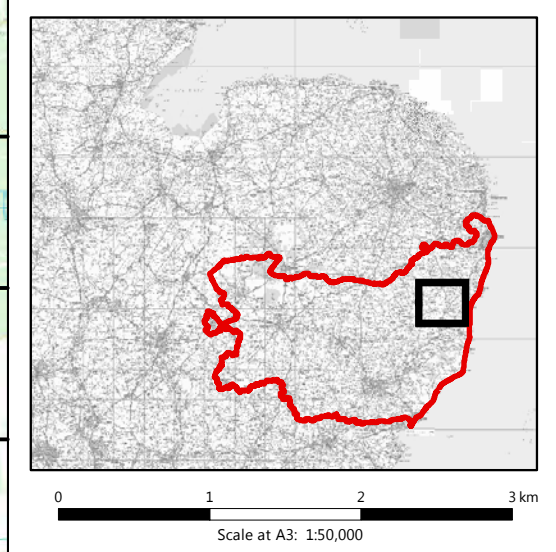


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed

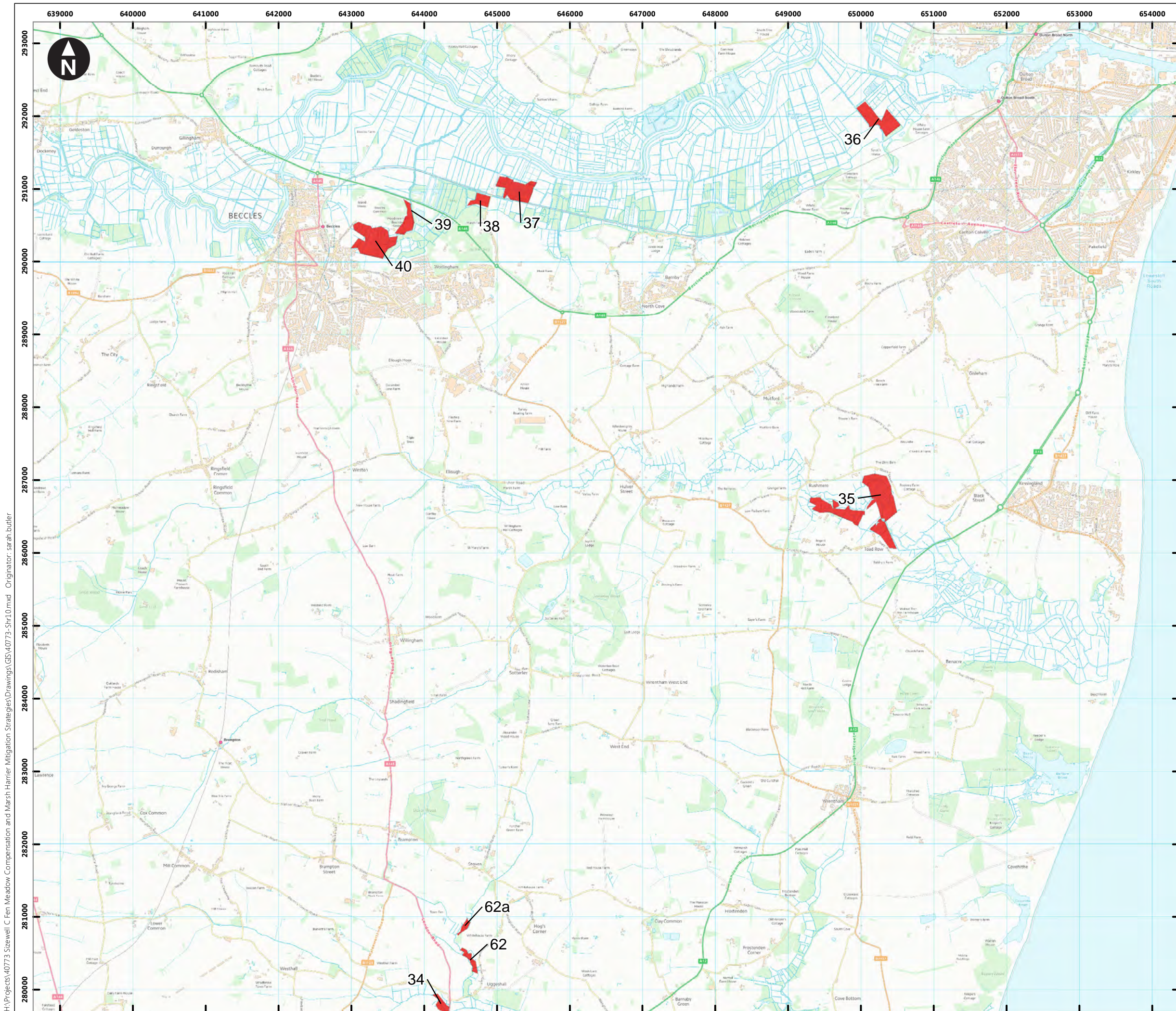


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**Figure 2.3b**  
RAG rating of land parcels with potential to support fen meadow

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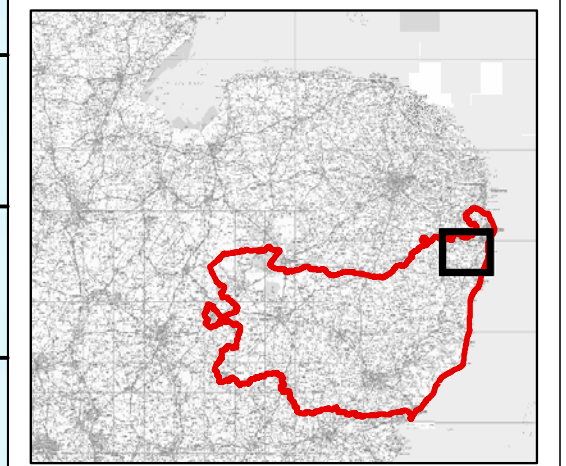


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed



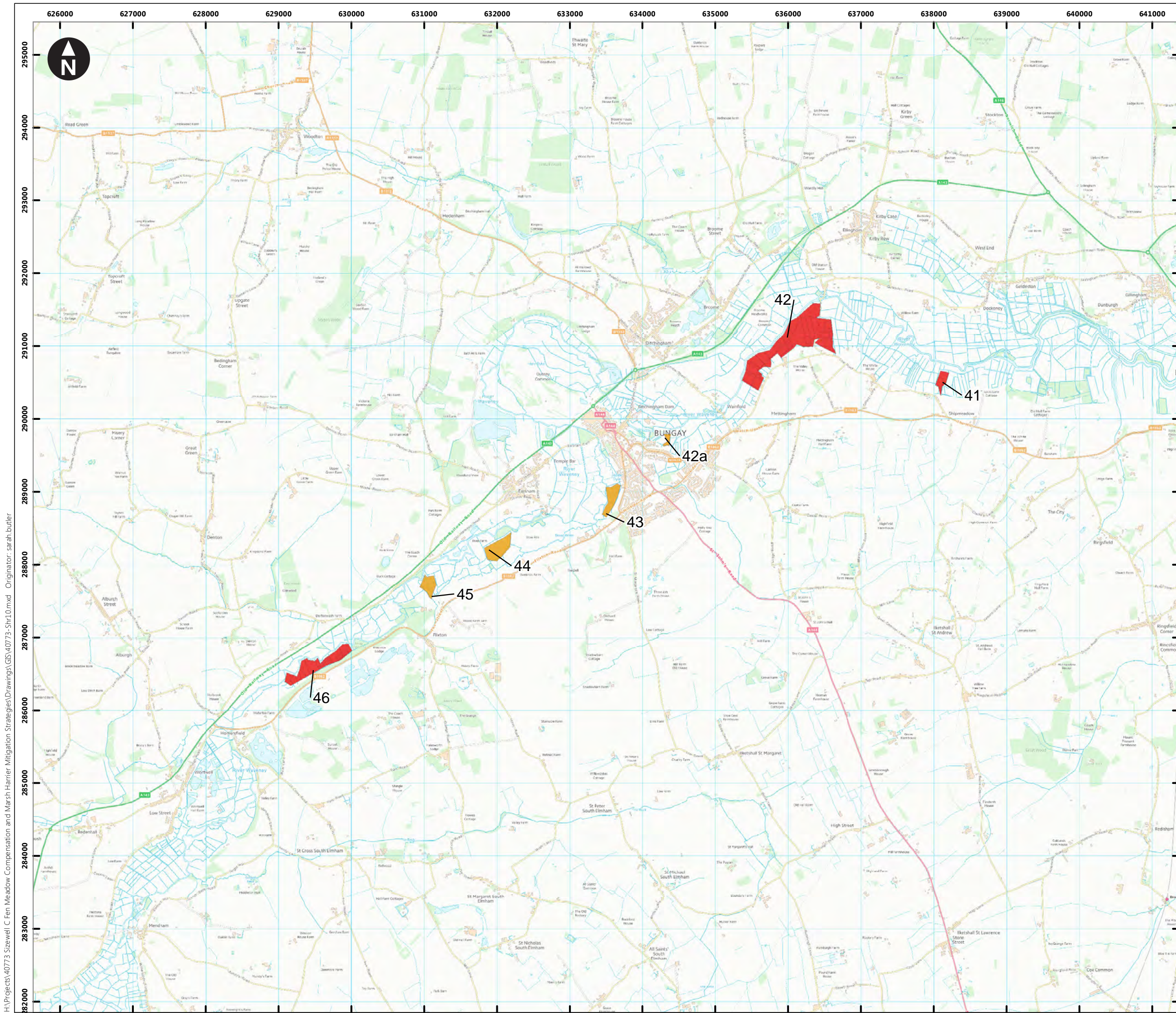
Scale at A3: 1:50,000

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**Figure 2.3c**  
RAG rating of land parcels with potential to support fen meadow

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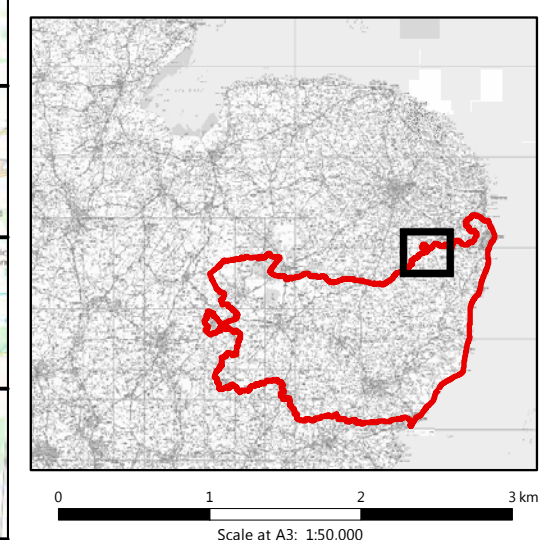


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed

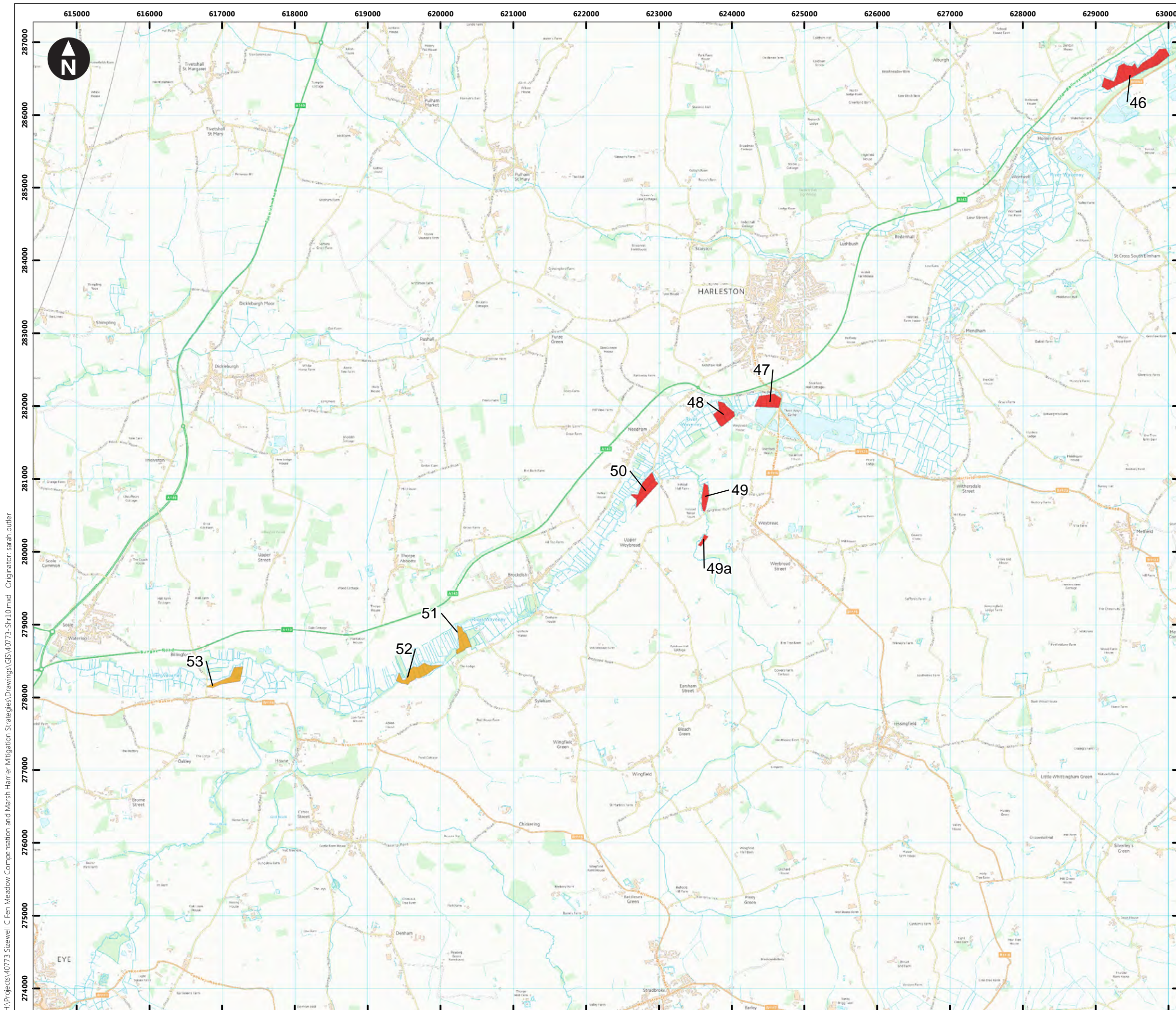


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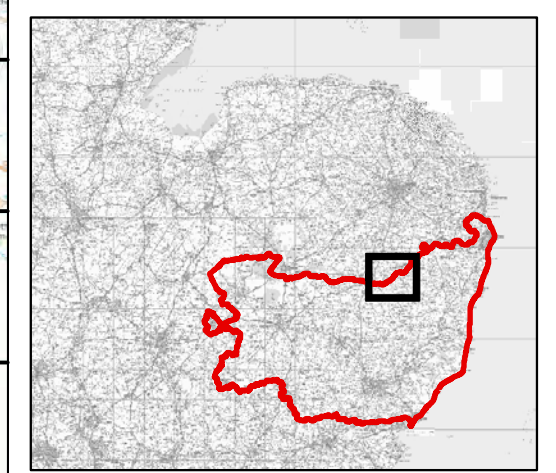
**Figure 2.3d**  
RAG rating of land parcels with potential to support fen meadow

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Key

- Potential sites identified prior to the study commencing
- Possible areas for fen meadow compensation within priority habitat**
- Take forward to next phase
- On hold
- Unlikely to proceed



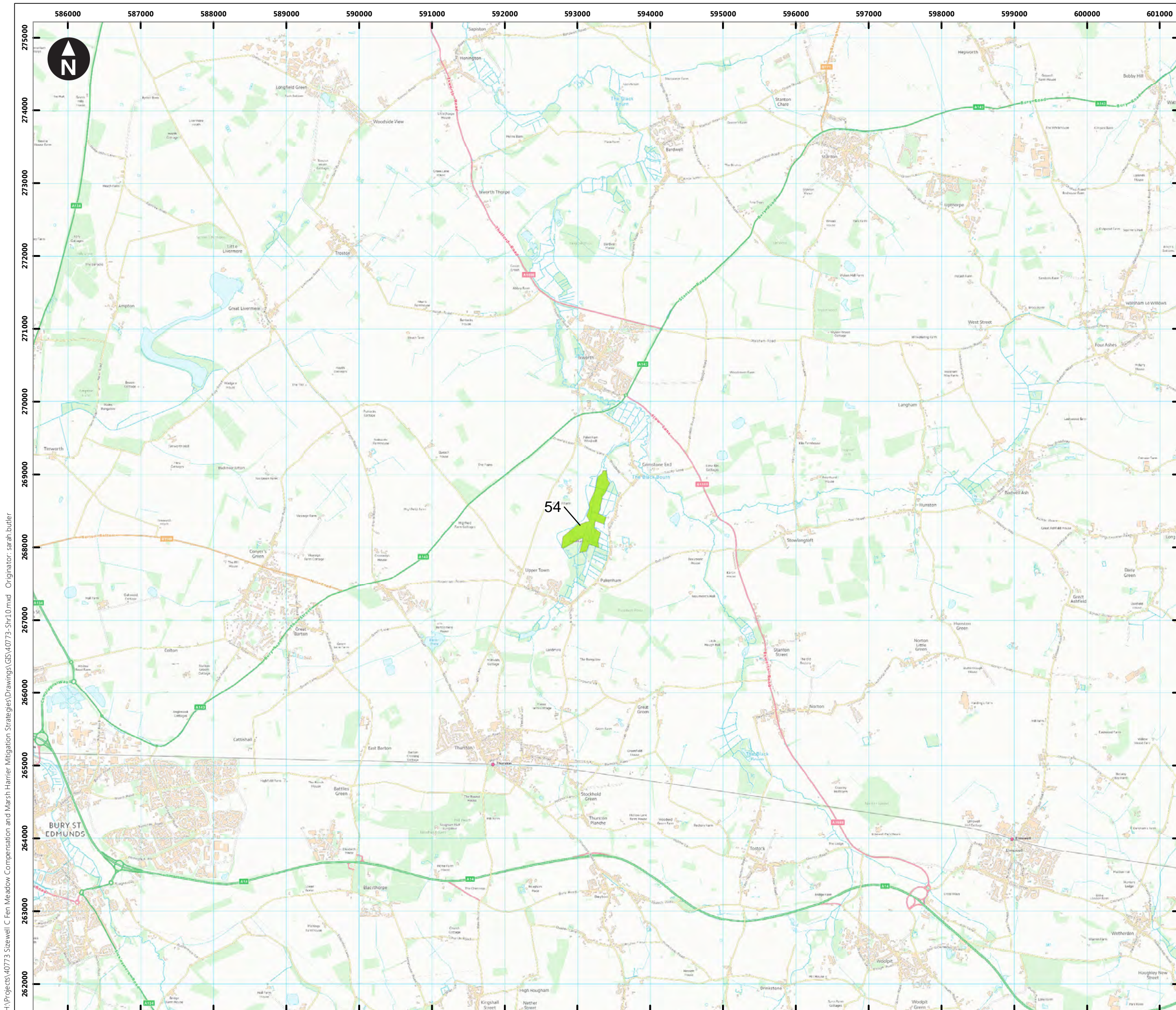
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**Figure 2.3e**  
RAG rating of land parcels with potential to support fen meadow

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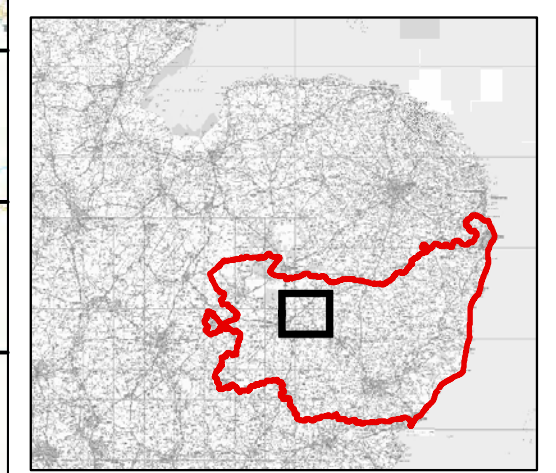
Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed

54



0 1 2 3 km  
Scale at A3: 1:50,000

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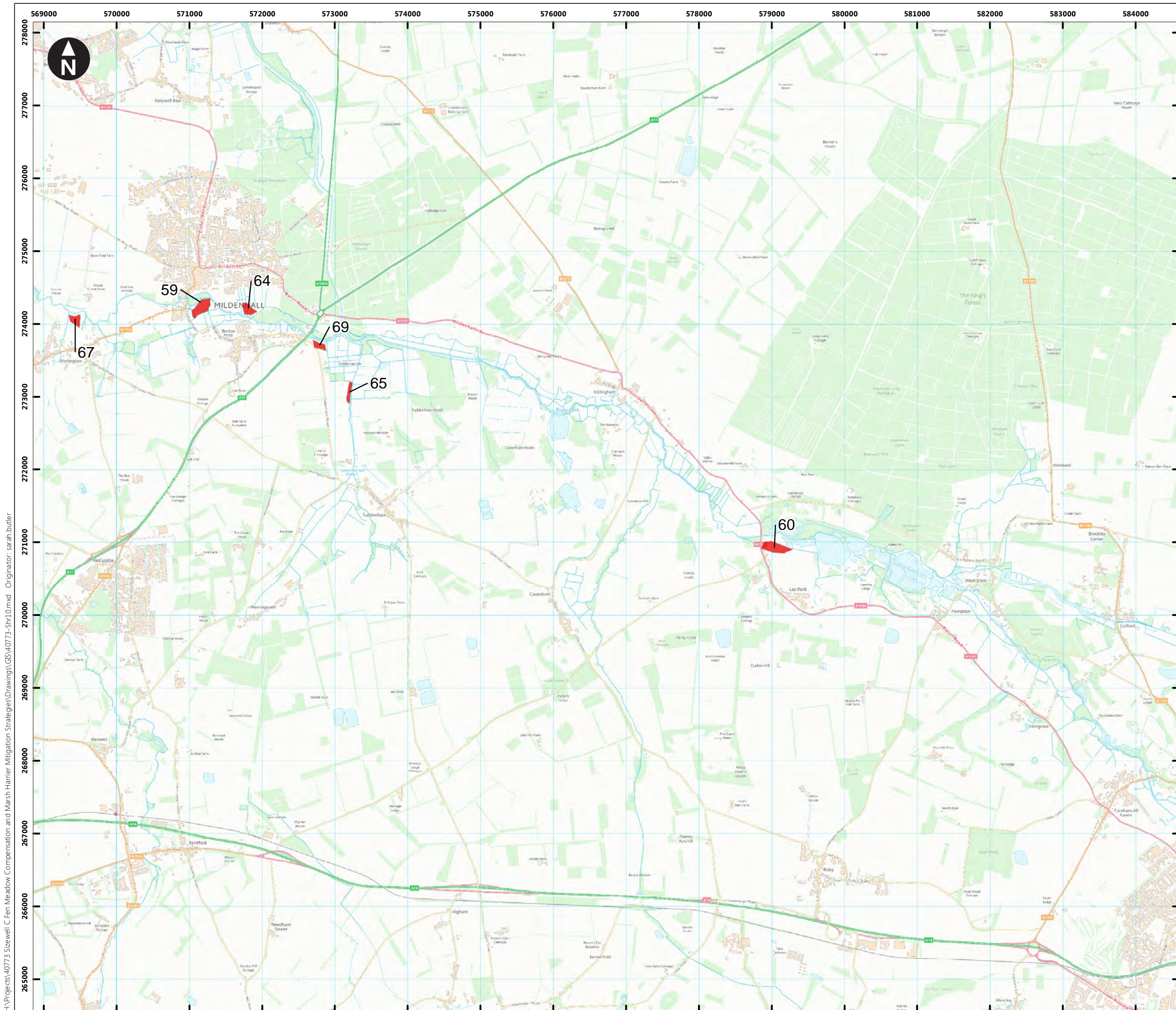
**Figure 2.3f**  
RAG rating of land parcels with potential to support fen meadow

June 2018



H:\Projects\40773 Sizewell C Fen Meadow Compensation and Marsh Harrier Mitigation Strategies\Drawings\GIS\40773-Spr10.mxd Originator: sarah.butler



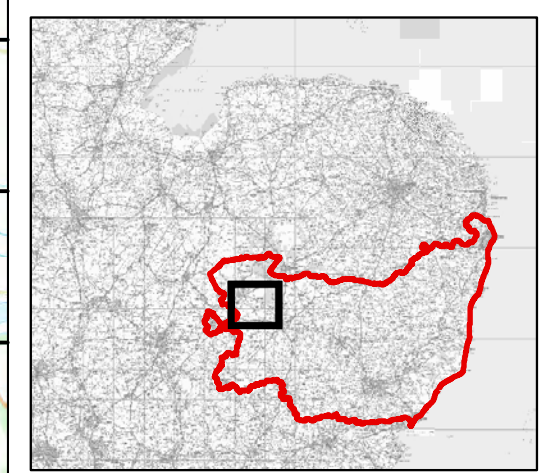


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed



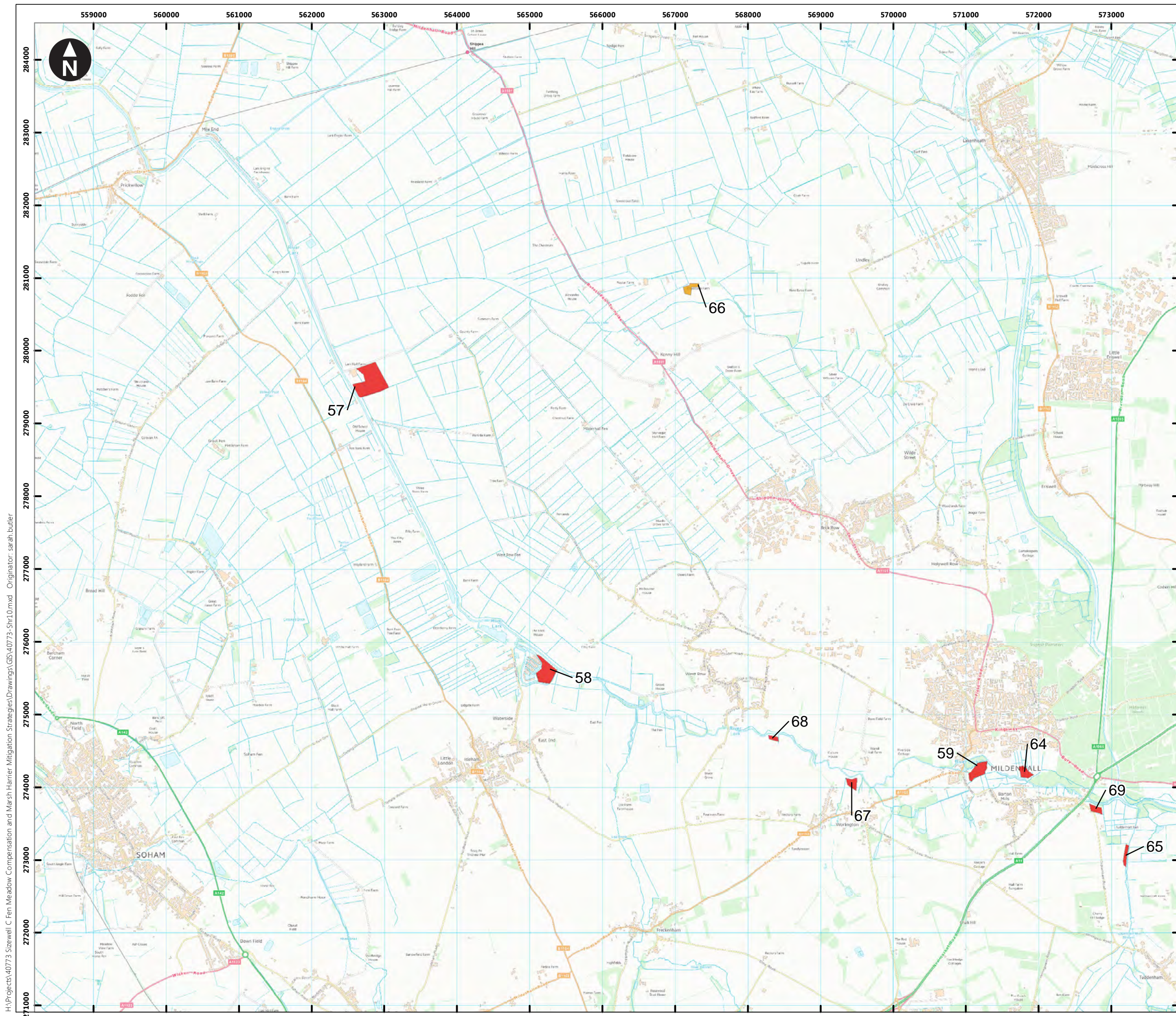
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Scale at A3: 1:50,000

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**Figure 2.3g**  
RAG rating of land parcels with potential to support fen meadow

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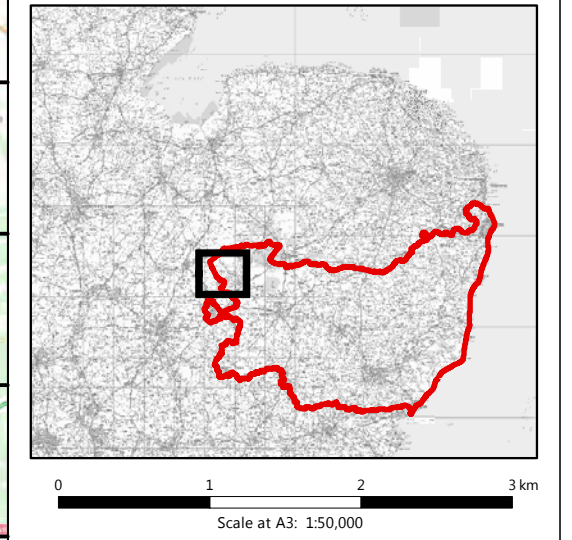


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed

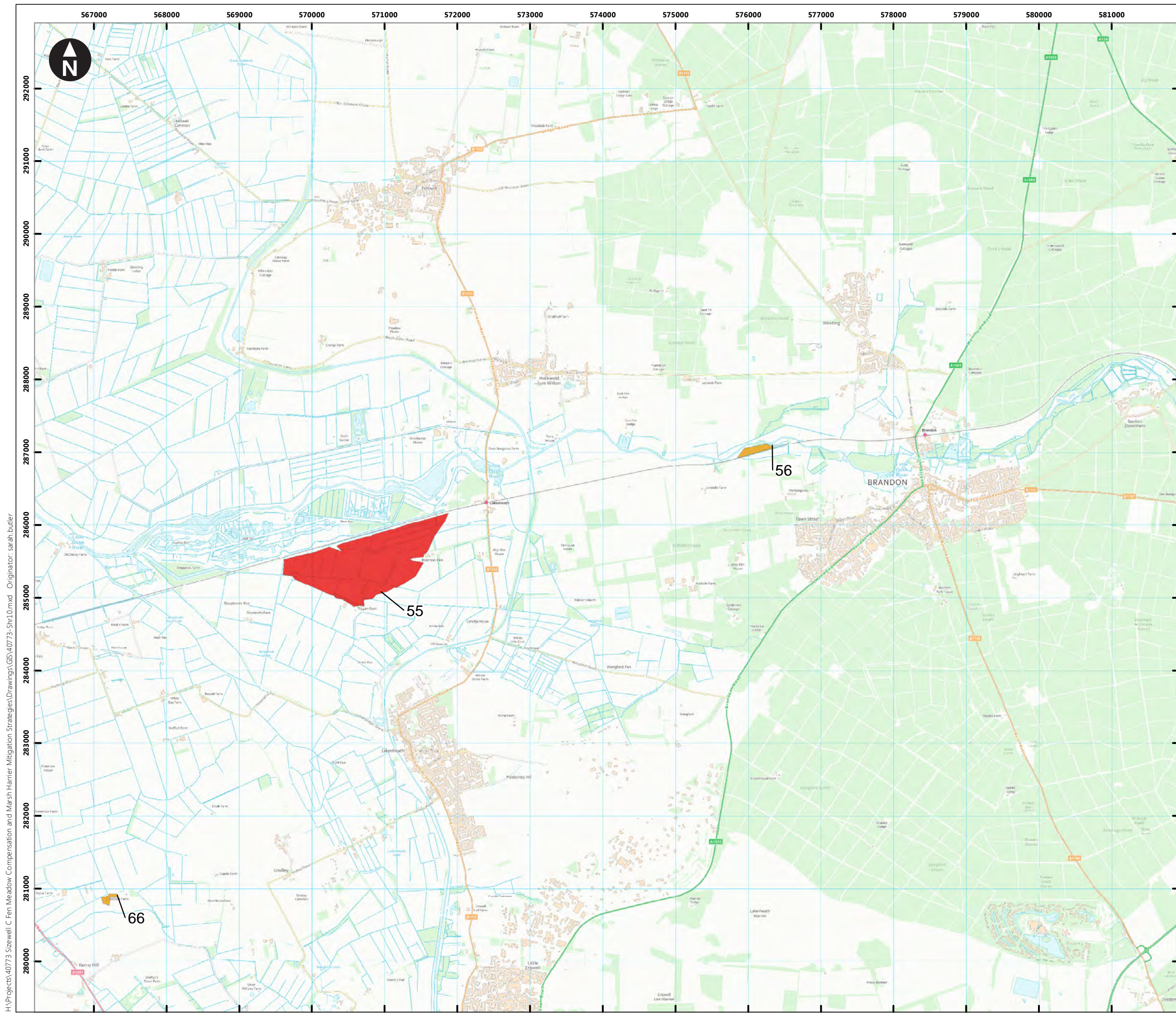


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**Figure 2.3h**  
RAG rating of land parcels with potential to support fen meadow

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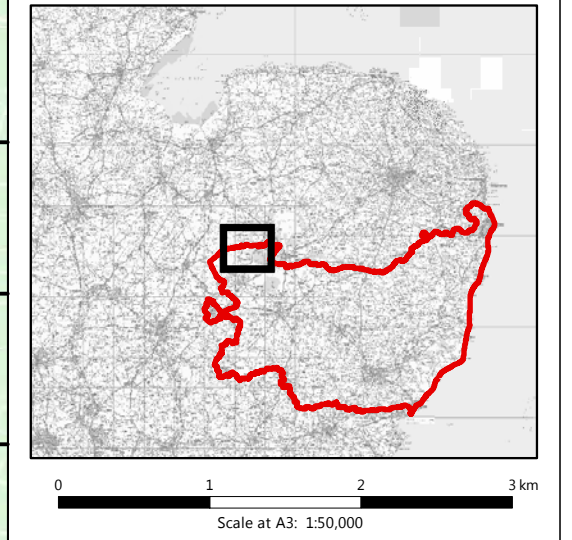


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed

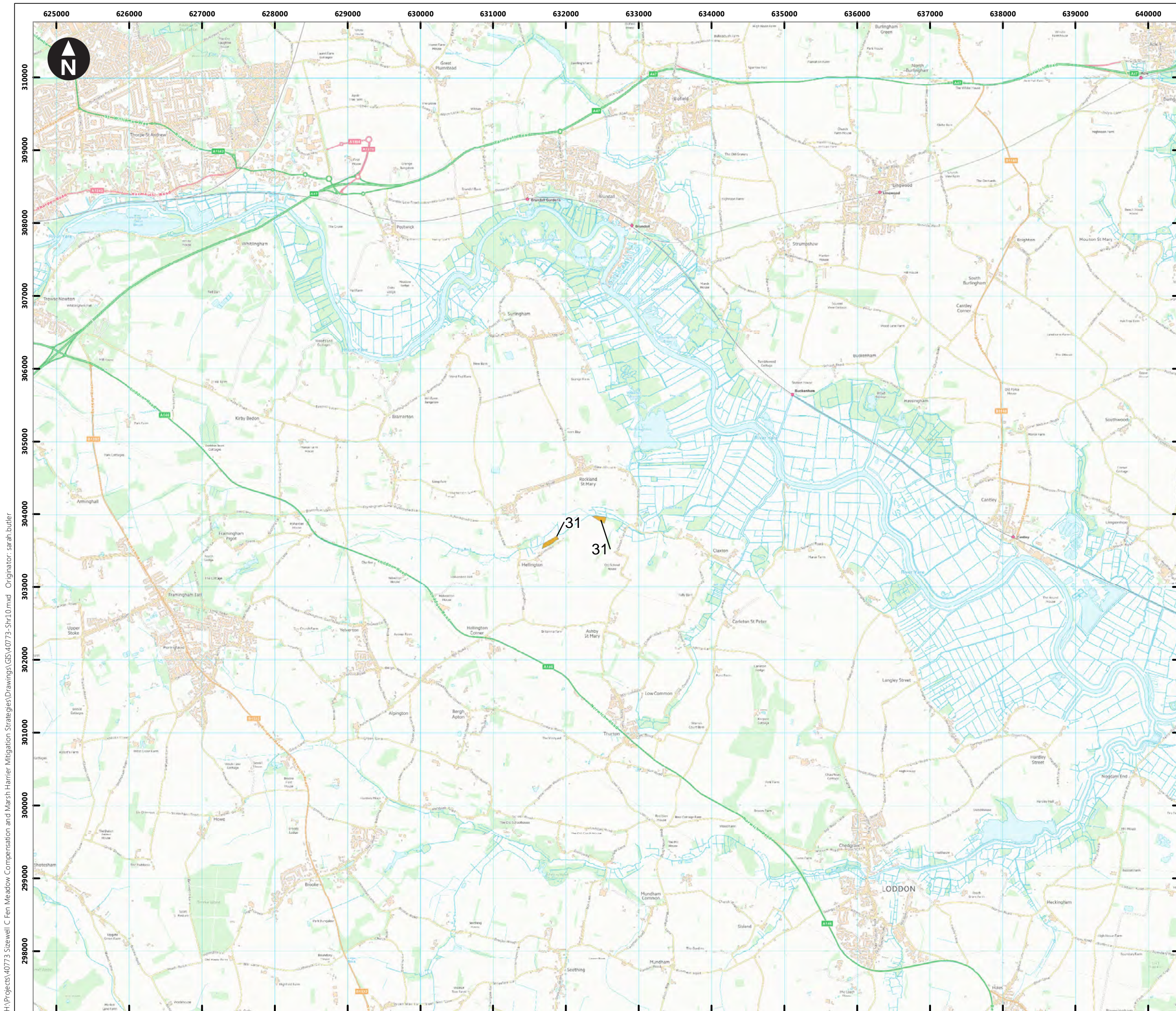


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Fen Meadow Compensation Study – Approach and Site Screen Report 2018

**Figure 2.3i**  
RAG rating of land parcels with potential to support fen meadow

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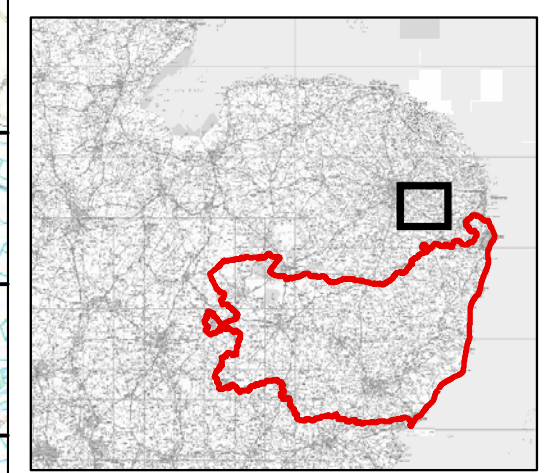


Key

- Potential sites identified prior to the study commencing

**Possible areas for fen meadow compensation within priority habitat**

- Take forward to next phase
- On hold
- Unlikely to proceed



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Scale at A3: 1:50,000

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**Figure 2.3j**  
RAG rating of land parcels with potential to support fen meadow

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# Appendix A

## Land Parcel Screening Results



Table A.1 Screening Results from Step 1 2016 and 2018

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
<b>Results of 2016 Screening of Alde, Minsmere and Blyth valleys</b>						
1	Beveriche, Yoxford	14.0	No – in Minsmere Valley Reckford Bridge to Beveriche Manor CWS	✓ About 70%	✓ ca 70%	✓
2	Wenhaston / Blackheath	4.9	✓	✓	✓	✓
3	Snape (Dunningworth Hall)	5.9	✓	✓	✓ ca 90%	✓
4	Westleton	19.4	No – part in Minsmere Valley Eastbridge to Reckford Bridge CWS	✓ Only ca 10%	✓	✓
5a	Land adjacent to Darsham Marshes (3 cmpts)	-	No – in Minsmere Valley Reckford Bridge to Beveriche Manor CWS	✓ About 15-20%	✓ 15%	Only 5% PMGRP
5b	Land adjacent to Darsham Marshes (3 cmpts)	-	No – in Minsmere Valley Reckford Bridge to Beveriche Manor CWS	✓ About 15-20%	✓ 15%	✓ Ca 50%, PMGRP
5c	Land adjacent to Darsham Marshes (3 cmpts)	-	No – in Minsmere Valley Reckford Bridge to Beveriche Manor CWS	✓ About 15-20%	X	Only 10% PMGRP
5d	Land to south west of Darsham Marshes	2.6	No – in Minsmere Valley Reckford Bridge to Beveriche Manor CWS	✓	✓	✓ PMGRP
6	-	9.8	✓	✓	✓	✓ CFPGM

<sup>7</sup> This is the area of the compartment meeting the screening objectives. An area taken forward for provision of compensatory habitat may not cover the full extent of the compartment area stated.

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
7	-	2.4	✓	✓	✓	✓ CFPGM
8	-	14.6	✓	✓	✓	✓ CFPGM
9	-	6.3	✓	✓	✓	✓ CFPGM
10	-	3.6	✓	✓	✓	✓ CFPGM
11	-	6.1	✓	✓	✓	✓ CFPGM
12	-	14.7	✓	✓	✓	✓ CFPGM
13	-	22.6	✓	✓	✓	✓ CFPGM
14	-	4.8	✓	✓	✓	✓ CFPGM
15	-	9.2	✓	✓	✓	✓ CFPGM
16	-	8.8	✓	✓	✓	✓ CFPGM
17	-	10.0	✓	✓	✓	✓ CFPGM
18	-	2.8	✓	✓	✓	✓ CFPGM
19	-	3.5	✓	✓	✓	✓ CFPGM
20	-	4.5	✓	✓	✓	✓ CFPGM
21	-	21.6	✓	✓	✓ Reported to be prone to saline flooding which is undesirable for fen meadow	✓ CFPGM
22	-	13.9	✓	✓	✓ Reported to be prone to saline	✓ CFPGM



Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2? flooding which is undesirable for fen meadow	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
23	-	14.5	✓	✓	✓	✓ CFPGM
23a	-	3.7	✓	✓	✓	✓ CFPGM
24	-	12.2	✓	✓	✓	✓ CFPGM
25	-	5.6	✓	✓	✓	✓ CFPGM
26	-	8.3	✓	✓	✓	✓ CFPGM
27	-	9.6	✓	✓	✓	✓ CFPGM
28	-	3.6	✓	✓	✓	✓ CFPGM
29	Walpole Bridge Meadows'	5.6	✓	✓	✓	✓ CFPGM
30	-	2.5	✓	✓	✓	✓ CFPGM
<b>Natural England Suggestion</b>						
31	-	2.3	✓ Part of the area suggested by NE was within Beck Meadows CWS. This has been excluded and remainder mapped as site 31	✓	Part	✓ Western block of fields Lowland fen and CFPGM
<b>RSPB Suggestions (not mapped)</b>						
	Robinsons Marshes	Not calculated	✓	No	✓	✓ CFPGM
	Iken Marshes	Not calculated	✓	No	✓	Wide band of CFPGM in eastern area of marshes, arable to west





Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
	Sudbourne Marshes	Not calculated	✓	No	✓	Wide band of CFPGM near to sea wall – then arable more inland
	Town Marshes, Orford	Not calculated	✓	No	✓	No
	Chantry Marshes, Orford	Not calculated	✓	No	✓	No
	Gedgrave Marshes, Orford	Not calculated	✓	No	✓	Some areas of CFPGM with other areas of arable
	Butley Marshes	Not calculated	✓	No	✓	Some areas of CFPGM with other areas of arable
<b>Results of Whole of Suffolk Screening 2018</b>						
32	Heveningham (u/s of road)		✓	✓	✓	✓ CFPGM
32a	Heveningham (d/s of road)		✓	✓	✓	✓ CFPGM
33	Stratford St Andrew		✓	✓	✓	✓ CFPGM
34	The Old Forge		✓	✓	✓	✓ CFPGM
35	Latymere Dam		✓	✓	✓	✓ CFPGM
36	Share Marsh		✓	✓	✓	✓ CFPGM
37	Land adjacent to Marsh Lane (north of railway)		✓	✓	✓	✓ CFPGM
38	Land adjacent to Marsh Lane (south of railway)		✓	✓	✓	✓ CFPGM
39	Woodview Farm		✓	✓	✓	✓ CFPGM

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
40	South of Beccles Golf Course		✓	✓	✓	✓ CFPGM
41	Land off Green Lane		✓	✓	✓	✓ CFPGM
42	Benstead Marshes		✓	✓	✓	✓ CFPGM
42a	Bungay Grassland		✓	✓	✓	✓ CFPGM
43	Land west of Bungay		✓	✓	✓	✓ CFPGM
44	Land to rear of Oaklands Farm		✓	✓	✓	✓ CFPGM
45	Land east of Marsh Plantation		✓	✓	✓	✓ CFPGM
46	Land north of Long Plantation		✓	✓	✓	✓ CFPGM
47	Land north of Lake at Shotford Bridge		✓	✓	✓	✓ CFPGM
48	Land west of Weybread House		✓	✓	✓	✓ CFPGM
49	Land north of Wingfield Road, adjacent to STW. Land south of Wingfield Road		✓	✓	✓	✓ CFPGM
49a	Land south of Wingfield Road		✓	✓	✓	✓ CFPGM
50			✓	✓	✓	✓ CFPGM
51			✓	✓	✓	✓ CFPGM

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
52			✓	✓	✓	✓ CFPGM
53	Land east of Low Road		✓	✓	✓	✓ CFPGM
54	Pakenham Fen		✓	✓	✓	✓ CFPGM
55	Land south of railway and RSPB Lakenheath		✓	✓	✓	✓ CFPGM
56			✓	✓	✓	✓ CFPGM
57	Lake Hall Farm		✓	✓	✓	✓ CFPGM
58	Land east of Isleham Marina		✓	✓	✓	✓ Lowland Fen
59	Land west of Norah Hanbury Meadows SWT Nature Reserve		✓	✓	✓	X, arable
60	Land south of Lackford Lakes SSSI		✓	✓	✓	✓ CFPGM
61	Land off Chediston Street Halesworth		✓	✓	✓	✓ CFPGM
62	Land at Uggeshall		✓	✓	✓	✓ CFPGM
62a	Land at Uggeshall		✓	✓	✓	✓ CFPGM
63	Land south of Snape Watering		✓	✓	✓	✓ CFPGM
64			✓	✓	✓	✓ CFPGM
65			✓	✓	✓	✓ CFPGM

Site No.	Site Name (where allocated)	Approximate Area (ha) <sup>7</sup>	Outside designated site?	On fen peat?	In EA flood zone 2?	On areas of priority habitat (Lowland Fen (LF), Coastal and floodplain grazing marsh (CFPGM) or Purple moor grass and rush pasture (PMGRP))
66			✓	✓	✓	✓ CFPGM
67			✓	✓	✓	✓ CFPGM
68			✓	✓	✓	✓ CFPGM
69	Land adjacent Tuddenham Road		✓	✓	✓	✓ CFPGM

Table A.2 Screening Results from Steps 2 and 3 (Site Visit)

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
1	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not accessible from PRoW. Not visited.
2	Yes	Yes? Site split by road so not clear if same both sides	No made track evident – access potentially only across field behind farm buildings on south side of road. However only a short distance	Not connected to habitats of value in conservation management	Semi-improved grassland. Rushes present. Ditches present. Potential to manage water levels. However likely to be degraded peat. Well drained site. Large difference between field and river level. Wettest, possibly lowest, areas at eastern end of compartment. Potential for fen meadow development alongside ditches if it is possible to raise the levels sufficiently.
3	Yes	Yes	No made track evident. Access probably through Dunningworth Hall, although may be possible from road on southern edge?	Not directly connected to any areas in conservation management but approximately 0.5km from Alde-Ore Estuary	Extensive block of floodplain grassland with reed lined ditches and wetland / rush element. Little management apparent (other than water level control). Potential for water management. Potential to manage to create a significant area of mosaic of wetland habitats.
4	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Majority of land parcel too high and too dry. Lowest areas near to the river of very limited extent and not accessible from PRoW to view.
5a	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not accessible from PRoW. Not visited.
5b	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not accessible from PRoW. Not visited.
5c	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not accessible from PRoW. Not visited.
5d	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not accessible from PRoW. Not visited.
6	Yes	Yes	Track from Saxmundham Road to southern edge	Not directly connected to any areas in conservation management but less than 0.5km from Alde-Ore Estuary	Extensive area of existing fen meadow seemingly in good condition. Very limited potential to enhance
7	Yes	Yes	Yes – direct from Aldeburgh Road	Not directly connected to any areas in conservation management and nearly 1km from Alde-Ore Estuary	Not accessible for site visit. However if similar to site 6 will be very limited potential to enhance.

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
8	Yes	Possibly single	Via made track that leads form the Farm	Not directly connected to any areas in conservation management and over 1km from Alde-Ore Estuary	Not accessible for site visit
9	Yes (and former river Fromus channel?)	Probably single	Via made track that leads form the Farm	Not directly connected but located close to the south of Gromford Meadows CWS	Very poor visibility. No evidence for groundwater seepage on the visible margin. No alders. From what was seen of the fields, no evidence that this is more than wet/ rushy grassland with reeds in ditches and around the open waterbodies.
10	Yes (and former ditches)	Probably single	Access not clear from desk study	Yes – immediately and partly includes Manor Farm Meadows CWS	Potential seepage from east. Extensive alder woodland areas. Valley bottom grassland not visible from track. Unclear re potential for water management. Manor Farm Meadows CWS forms part of this block and should be excluded. However the rest of the block has connectivity to appropriate habitats and potential for enhancement
11	Yes (and former ditches)	Probably single	Access not clear from desk study	Yes – immediately adjacent to Manor Farm Meadows CWS	Floodplain grassland retains FM species and also relict ditch system. Both positive and negative indicator species present so potential for enhancement in this respect and also relatively heavy grazing currently. Peat probably in good condition. Field surface only elevated around 30-45cm above the water level in adjacent watercourses. Significant potential for enhancement. Located across the ditch from Manor Farm Meadows CWS - a small but rich area of fen meadow habitat - so connectivity good at this site too.
12	Yes on mapping but not clear on the ground	Possibly 2 owners	No clear access	Not directly connected, or close to, any areas in conservation management	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible (although not accessible). No visible potential to manage water. Fields several feet above river level. Peat likely to be degraded.
13	Yes	Possibly 2 but individual parcels within this area large enough	Access direct from road	Not directly connected, or close to, any areas in conservation management	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible (although not all visible or accessible).



Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					No visible potential to manage water. Fields several feet above river level. Peat likely to be degraded.
14	Yes	Probably single	Probably through Gorse Farm	Not directly connected, or close to, any areas in conservation management	Not visit as not accessible however no reason to believe it will be different to site 13.
15	Yes	Probably single	Unclear. No track visible. Access direct from road?	Not directly connected, or close to, any areas in conservation management	Tall agricultural grassland mix. Improved to SI grassland No wetland element visible (although not accessible). No visible potential to manage water. No clear source of water. Peat likely to be very degraded.
16	Yes	Probably single	Access probably through pig farm	Not directly connected, or close to, any areas in conservation management	Not accessible from PRow. Not visited.
17	Yes	Probably single	Access direct to fields through Milestone Farm	Not directly connected, or close to, any areas in conservation management	Viewed from footpath adjacent to the A12. Improved and drained grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works
18	Yes – although possibly grown over	Probably single	Access probably from track to Lime Tree Farm	Not directly connected, or close to, any areas in conservation management	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.
19	Yes – although possibly grown over	Probably single	Direct from Low Road on south side	Not directly connected, or close to, any areas in conservation management	Tall agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.
20	Yes	Probably single	Unclear from aerial photo.	Not directly connected, or close to, any areas in conservation management	Mostly short grazed dry grassland Large difference between river level and field level so significant drainage gradient. Also narrow site. Little or no potential for FM without significant engineering works.



Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
21	Yes	Probably more than 1	No clear access track	Not directly connected to any areas in conservation management and around 1km upstream of Minsmere-Walberswick SSSI	Not accessible from PRow. Not visited.
22	Yes	Probably more than 1	Possible access to southern half direct from track to Laurel Farm	Not directly connected to any areas in conservation management and more than 1km upstream of Minsmere-Walberswick SSSI	Not accessible from PRow. Not visited.
23	Yes	Probably single	Track access through Heath Farm	Not directly connected to any areas in conservation management and more than 1km upstream of Minsmere-Walberswick SSSI	Limited visibility from western end. However tall agricultural grassland mix. Improved to SI grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient. No water management mechanism evident. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works
23a	Yes	Probably single	Track access through Blyford Hall Farm	Not directly connected to any areas in conservation management and more than 1km upstream of Minsmere-Walberswick SSSI	Not accessible from PRow. Not visited.
24	Yes	Probably multiple	No clear access visible	Not directly connected to any areas in conservation management and more than 3km upstream of Minsmere-Walberswick SSSI	Agricultural grassland mix. Improved to semi-improved grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient. Single ditch in field and so very limited potential to manage water. Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.
25	Yes	Probably single	No clear track. Access probably from Redhouse Farm direct to fields. Looks quite agricultural.	Not directly connected to any areas in conservation management and more than 3km upstream of Minsmere-Walberswick SSSI	Rush pasture to south of river. Heavily grazed by cattle currently. Large difference between river and field level so significant drainage gradient. Ditch present but limited potential to manage water given the elevation of the fields relative to the river.
26	Yes	Probably multiple	No clear access visible	Not directly connected to any areas in conservation management and more than 4km upstream of Minsmere-Walberswick SSSI	Tall agricultural grassland mix. Improved to SI grassland. No wetland element visible. Large difference between river and field level so significant drainage gradient.



Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					No ditches present. No potential to manage water Peat likely to be degraded and no sign of seepage. No potential for enhancement without significant engineering works.
27	Yes	Probably single	No clear access	Not directly connected to any areas in conservation management and more than 4km upstream of Minsmere-Walberswick SSSI	Not accessible from PRoW. However if similar to 35 and 34 then no prospect of being suitable
28	Yes	Probably single	Accessible from Blyth Road access to Blyth Road Industrial Estate	Not directly connected to any areas in conservation management and more than 4km upstream of Minsmere-Walberswick SSSI	Interesting site. Combination of cattle and sheep grazing on-going with sheep on elevated ground and cattle in the rushes. Rush pasture. Some potential to manage water however there would be a question over the state of the peat - would need further investigation. Limited potential to develop FM (although not a complete non-starter) - limited potential for enhancement. River on south side of plot so could not record the height difference between fields and water level.
29	Yes – (shallow, no standing water)	Possibly multiple	Narrow access from road by bridge	Not directly connected, or close to, any areas in conservation management	Dry river corridor with only rare alders. Only wetland herbs restricted to shallow ditches - appears to be Reed Canary Grass. No evidence seen (from road only) for seepage. C. 7ft freeboard in stream. Little potential for restoration.
30	Yes	Probably single	Access through smallholding and across a field – no track. Looks like agricultural grassland	Yes - Immediately upstream of CWS although not sure this is in conservation management	Not accessible from PRoW. Not visited.
<b>Natural England Suggestion</b>					
31	Yes	Probably single	Access along a track from Low Common	✓ Adjacent to existing CWS in need of restoration	Not visited at this stage as in South Norfolk
<b>Results of Whole of Suffolk Screening 2018</b>					

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
32	Yes	Probably single	No made track evident – although likely accessible off road	Lies immediately upstream of Gothic Farm Meadow CWS - so connectivity with other quality habitat	<p>Extensive shallow lake already created in this area. Appeared recent as margins looked recently seeded. Shallow scrapes also created adjacent to the lake but on the other side of the river channel. Could not see further up the valley to determine how these, or the lake, were supported.</p> <p>May be scope for fen meadow further up the valley for fen meadow but not visible.</p>
32a	Yes	Probably single	No made track evident – although likely accessible off road	Lies immediately adjacent to Gothic Farm Meadow CWS - so connectivity with other quality habitat	<p>Looks like lake has been extended recently. Polygon area highlighted on the plan has recently been graded and reseeded. Also, sloping and not wet.</p> <p>No prospect of fen meadow at this location.</p>
33	Yes	Probably single	No made track evident. Access probably through farms	Not located close to any designated sites or reserves.	<p>Interesting site.</p> <p>Accessible from public footpath at southern end.</p> <p>Band of hard rush located in field, off-set from ditch, suggesting chalk groundwater near surface.</p> <p>Peaty soil at the surface (evidence from mole hills).</p> <p>Ditch network may offer potential for management to raise water levels locally.</p> <p>May need some ground level lowering in a strip away from the river to develop fen meadow although this may also increase uncertainty as to the outcome.</p> <p>Requires further investigation.</p>
34	Yes on OS but not clear on aerial.	Probably single	No made track evident.	Not located near to any designated sites or reserves. IN a valley indicated as supporting CFPGM	<p>Tall dry grassland. No obvious wetland element.</p> <p>Field level well above the river.</p> <p>No prospect of water level control.</p>
35	Yes	Probably multiple but each parcel sizeable	No made track evident. Access probably through farms.	Located immediately upstream of Kessingland Levels CWS – so connectivity with designated site	<p>Large area but not publicly accessible.</p> <p>Elevated margins used for grazing horses. Definitely appeared to a wetter area on the middle, with plenty of ditches but not accessible or clearly visible.</p> <p>Key issue would likely be the difficulty of manipulating water levels over a small area surrounded by other landowners.</p>

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
36	Yes	Single	Not assessed	In large area of CFPGM and adjacent to Sprats Water and Marshes SSSI.	Marshes now included in the Broads Southern Gateway project. Cannot be progressed as part of this study.
37	Yes	Single	Made track present along the northern edge of land parcel.	Located immediately adjacent to North Cove Alder Carrs CWS – so connectivity with designated wetland site.	Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface. In pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.
38	Yes	Single	Access from road.	Located immediately adjacent to North Cove Alder Carrs CWS – so connectivity with designated wetland site.	Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface. In pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.
39	Only on eastern edge.	Single	Access from track across Common Land	Located immediately adjacent to Beccles Common CWS. However this is dry heath and acid grassland predominantly.	Fields dry and very heavily grazed. Alder woodland along the eastern edge probably demarcates the extent of wetness. No obvious mechanism for wetting the area. Likely, at least in part, underlain by sands and gravels. No prospect of establishing fen meadow.
40	Yes	Possibly multiple but each land parcel sizeable	Access from track across Common Land	Located immediately adjacent to Beccles Common CWS. However this is dry heath and acid grassland predominantly.	Viewed from northern edge looking south. Not accessible otherwise. Fields heavily grazed. Certainly dry along the northern margin. Looks to be wetter areas in the lower lying land but these were not clearly visible. No clear mechanism for manipulating water levels. Likely, at least in part, underlain by sands and gravels. Not sufficiently visible to fully assess prospect of establishing fen meadow but considered unlikely.
41	Yes	Single	Access not straightforward, across fields likely owned by others.	In large area of CFPGM but not near any reserves or designated sites.	Grazing marsh but water level not influencing the surface. Grassland with little or no wetland element, surrounded by nice ditches. Water level well below marsh surface.

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					Likely in pump drained system so little prospect of manipulating water levels such that they become favourable for fen meadow without adversely affecting adjacent landowners.
42	Yes	Possibly multiple but each land parcel sizeable	No clear access direct from roads. Must be through farms	In large area of CFPGM but not near any reserves or designated sites.	Only visible from road so was not possible to assess potential adequately but visible areas have been well drained. Likely that water level control would be difficult.
42a	Yes, on OS	Single	No clear access track.	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRow. Not visited.
43	Yes, on OS	Single	Accessible from rear of garden centre.	In large area of CFPGM but not near any reserves or designated sites.	Visited but not sufficiently visible to assess adequately. Ditches present, with wetland vegetation but grassland did not appear to have wetland component.
44	Surrounded by ditches but no internal ditches on OS	Single	Access across field from Fen Farm Dairy.	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRow. Not visited.
45	Yes	Single	No clear access.	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRow. Not visited.
46	Yes	Possibly multiple but each land parcel sizeable	Access off main road, or through farms.	In large area of CFPGM but not near any reserves or designated sites.	No public access. From roadside view, ditch water level was near to field level but much of the area appeared to have been ploughed and seeded. It was not clear what had been planted at this stage, but looked like arable crop.
47	Yes on OS map.	Single	No clear access.	In large area of CFPGM but not near any reserves or designated sites.	Looked dry grassland. No prospect of fen meadow.
48	Yes	Single	Access from track.	In large area of CFPGM but not near any reserves or designated sites.	Could not get close enough to assess in detail. Ditches present although likely quite dry as more nettle than wetland vegetation visible. Grassland looked dry, with no wetland component. Site on a bit of a slope. Little prospect.
49	River and single ditch	Single	Accessible from road	In large area of CFPGM but not near any reserves or designated sites.	Fields too high above the river water level. Ditches looked likely to be dry. Dry grassland with no wetland element.



Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					Farmer letting animals drink direct from the river leading to sediment erosion. No prospect of fen meadow.
49a	River only	Single	No clear access	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRoW. Not visited.
50	Yes	Single	Access off Mill Lane.	In large area of CFPGM but not near any reserves or designated sites.	No public access but looked dry from road (and from aerial photograph). Dominated by <i>Holcus</i> . No wetland element in the sward. No clear prospect of managing water levels.
51	Yes on OS	Single	Access likely through Monks Hall	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRoW. Not visited.
52	Yes on OS	Single	Access likely through Monks Hall	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRoW. Not visited.
53	Yes, in north east of parcel on OS.	Single	Access off Low Road	In large area of CFPGM but not near any reserves or designated sites.	Only visible at western end. Ditches not visible. Site dominated by tall <i>Holcus</i> grassland. No wetland element. No clear prospect of wetting the area or developing fen meadow.
54	Yes	Possibly multiple but each land parcel sizeable	Accessible both sides of the river.	Adjacent to Pakenham Meadows SSSI and also Pakenham Fen Meadows CWS. So good connectivity	Interesting site but access to the large area limited to a single footpath across the area towards its northern end. Good quality, if slightly under-managed fen meadow in Pakenham Meadows SSSI to east of river. Area of interest includes land immediately south of the SSSI and also to the west of the river (which was visited). Land to the west of the river is heavily cattle grazed currently. It is likely to have been fen meadow in the past. JS found <i>Calliergonella</i> remaining in the sward. However very few / any broad-leaved herbs remain in the sward suggesting possible use of some sort of selective sward. River level high relative to the adjacent fields. Potential to manage / manipulate water levels in the ditches to the west of the river. If that was possible, and relaxed grazing,



Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					<p>potential for gradual rewetting and perhaps re-establishment of fen meadow with time.</p> <p>Areas to the south of the SSSI look potentially wetter on the aerial, and are adjacent to the CWS.</p> <p>Definitely a site worth revisiting if wider access can be arranged. Requires further investigation.</p> <p>Useful information as a site account for the SSSI in A Wetland Framework for Impact Assessment at Statutory Sites in Eastern England (Wheeler and Shaw, 1999).</p>
55	Yes, on OS	Likely single	Accessible but depends on which parcel may be suitable.	Immediately south, and across railway, from Lakenheath Fen CWS and RSPB Reserve. So, quality habitat nearby	<p>Polygon area not visible as too far from road. No public footpaths.</p> <p>Grassland classified as CFPGM extends to road but not included in polygon as not mapped as fen peat.</p> <p>Pump drained area. Water level 1-1.5m below field level.</p> <p>On aerial photo grassland looks dry. Large agricultural area and likely that attempts to raise water levels would conflict with agricultural interests in this large block.</p> <p>No clear prospect of wetting the area or developing fen meadow.</p>
56	Yes on OS	Single	No clear access.	In large area of CFPGM but not near any reserves or designated sites	Not accessible from PRow. Not visited.
57	Yes on OS and aerial	Single	Accessible from farm.	Isolated block of grassland mapped as CFPGM	<p>Looks dry from aerial photograph. Main grazing field in front of farm.</p> <p>Pump drained area.</p> <p>Likely that attempts to raise water levels would conflict with agricultural interests in this large block. Location of field also likely to make it unfavourable prospect for landowner.</p>
58	Yes on OS	Single	Access looks problematic, possibly via marina or nearby track.	Mapped as isolated block of Lowland Fen.	<p>Area already highly managed by marina.</p> <p>Single block of dense reed on southern edge and then rough grassland.</p> <p>Access problematic.</p> <p>Quite wet on edge of a lake.</p> <p>Unlikely to be possible to manipulate water levels.</p> <p>Little prospect of altering character to fen meadow.</p>

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
59	Yes, on margins only	Single	Accessible off Station Road.	Adjacent to Norah Hanbury wet meadows CWS and nature reserve. So good connectivity albeit with wet grassland, not fen meadow.	Arable in cultivation. Site elevated above adjacent reserve so no prospect of fen meadow.
60	No	Single	Accessible from track for management.	Classified as good quality semi-improved grassland and located immediately south of Lackford Lakes SSSI.	Part of West Stow Country Park and already managed. No ditches present. No prospect of raising water levels or of establishing fen meadow.
61	Yes on margin	Single	Accessible from road.	In an area of CFPGM but not near any reserves or designated sites.	Site on a significant slope. Western field horse grazed and dry. Potential seepage area in middle of eastern field with wetland vegetation (willow, alder, iris) but very discrete area. No apparent seepage downslope, although not very visible from roadside. Considered unlikely to be possible to extend the seepage area. Significant drop to marginal ditch water level in east. No prospect of increasing water levels or of establishing fen meadow.
62	Yes	Single	Accessible from track	In large area of CFPGM but not near any reserves or designated sites.	Possible catchdyke present with several cross drains, which were wet. No evidence of seepage. Although river level within 1m of the surface, the vegetation was more floodplain grassland than fen. No fen species. May be possible to control water levels but would need to be accompanied by scraping to lower the ground surface with uncertain likelihood of success.
62a	Yes	Single	Accessible from track	In large area of CFPGM but not near any reserves or designated sites.	Not accessible from PRow. Not visited.
63	Yes	Possibly multiple but each land parcel sizeable	Accessible from track	In large area of CFPGM but not near any reserves or designated sites.	Mostly tall dry grassland. Some wet areas visible at a distance associated with ditches, and possibly an area of open water (difficult to see). No obvious wetland species in the main sward. Considered to be little prospect of manipulating water levels or establishing fen meadow.

Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
64	Yes on OS, although overgrown	Single	Access from residential area	In large area of CFPGM and adjacent to Barton Mills LNR, Barton Mills CWS and Breckland Forest SSSI	Rough grassland. Aerial suggest heavily used by residents of adjacent estate. Ditches overgrown or in-filled. Immediate juxtaposition of estate and heavy public access not favourable. Not visited.
65	On margins only	Single	Access from farm	In large area of CFPGM but not near to any reserves or designated sites	Not accessible for site visit but looks unsuitable from aerial photograph.
66	On margins only	Single	Access from farm	In isolated blocks of CFPGM. Not near any reserves or designated sites	Not accessible from PRow. Not visited.
67	On margins only	Single	Access from farm	Isolated block of CFPGM. Not near any reserves or designated sites	Looks unsuitable on aerial. Dry agricultural grassland. Not visited.
68	On margins only	Single	Access from farm	Isolated block of CFPGM. Not near any reserves or designated sites	Looks unsuitable on aerial. Dry agricultural grassland. Not visited.
69	Only river	Single	Access from track	In large area of CFPGM and adjacent to Barton Mills Meadows CWS.	Looks improved on the aerial. No prospect of raising water levels given absence of ditches. Not visited.
10 / 11 (2018)					Revisited in 2018. Still a prospect site. The key challenge would be how to enhance as management of water levels would be key. Potential for some ditch blocking in the lower valley area to raise water levels which would like all fen meadow species to expand in extent. To extend fen meadow further from the ditches would probably require some limited ground level manipulation also. This may increase uncertainty as to the outcome. Requires further investigation.
28 (2018)					Revisited in 2018. Still an interesting site as reported previously. Combination of cattle and sheep grazing on-going with sheep on elevated ground and cattle in the rushes. Rush pasture. Jointed rush north of the first ditch, potentially indicating groundwater influence.





Site No.	Ditches present	Single or multiple landowner?	Accessibility	Connectivity	Site visit observations including potential to enhance
					River was visited and water level is well below the field surface. On re-visiting the site however it appeared that there would be potential to manage (maintain) water levels in ditches and currently ditch levels are within 30-60cm of field surface. Although there would still be a question over the state of the peat – it is considered worth further investigation into potential for enhancement.



**wood.**

